

104042

SEARCH REQUEST FORM
Scientific and Technical Information Center

Examiner : MARK HAN

Art Unit : 3763

Phone Number: 703-308-4543

Date: 16 SEPTEMBER 2003

Serial Number: 10/035, 389

SEP 16 2003

MailBox & Bldg/Room Location: CP2-3D16

Results Format Preferred (circle): Paper Disk E-mail

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: *Methods and Apparatuses for Drug Delivery to an Intravascular Occlusion*

Inventors (please provide full names): GHOLAM-REZA (← first name) ZADNO-AZIZI (← last name)

Earliest Priority Filing Date: 23 JUNE 1998

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Claim 1: A method for treating an intravascular occlusion, comprising the step of delivering fluid containing an occlusion-treating drug such that at least a portion of the drug contacts an intravascular occlusive device.

Claim 2: The method of claim 1, wherein the occlusive device is a balloon.

Claim 6: The method of claim 1, wherein the drug is delivered at a flow rate of between about 0.1 and 10 cc/second.

Claim 9: A method for treating an intravascular occlusion, comprising:

delivering an occlusive device into a blood vessel to a site near said occlusion;

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0 AU=ZADNO? G?
0 AU=ZADNO? , G?
S1 0 AU=(ZADNO? G? OR ZADNO? , G?)
?show files
File 347:JAPIO Oct 1976-2003/May(Updated 030902)
(c) 2003 JPO & JAPIO
File 348:EUROPEAN PATENTS 1978-2003/Sep W03
(c) 2003 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20030925,UT=20030918
(c) 2003 WIPO/Univentio
File 350:Derwent WPIX 1963-2003/UD,UM &UP=200361
(c) 2003 Thomson Derwent

Set	Items	Description
S1	86453	(VENOUS OR VEIN? OR ARTERY OR ARTERI? OR VASCULAR? OR INTR- ?VASC? OR INTR?VEN? OR BLOOD?()VESSEL? OR VENAL OR CORONAR?)
S2	78348	OCCLUD? OR OCCLUSI? OR OBSTRUCT? OR STENOS? OR STENOT? OR - RESTENOS? OR RESTENOT? OR PLAQUE?
S3	39692	SCLERO? OR THROMB? OR BLOODCLOT? OR BLOOD()CLOT? OR ISCHEM- I? OR ARTER?SCLER? OR PLAQUING
S4	148	CALCIUM()DEPOSIT?
S5	67093	BALLOON? OR PLASTY? OR PLASTIE? ? OR ANGIOPLAST? OR OCCLU?- ()DEVICE? OR INFLAT? OR CARDIOPLAST?
S6	9	ARTERIOPLAST?
S7	874275	DELIVER? OR ADMINIST? OR INJECT? OR INFUS? OR PERFUS?
S8	39212	CATHETER? OR CANNULA? OR CANULA? OR TROCAR? OR LUMEN? OR H- OLLOW?(N)WIRE?
S9	85412	DRUG? OR NARCOTIC? OR OCCLU?(N)TREAT? OR ANTICOAGUL? OR AN- TI()COAGUL? OR THROMBYT?
S10	7240	RADIONUCLID? OR RADIO()NUCLID? OR RADIOISOTOP? OR RADIO()I- SOTOP? OR RADIOACTIVE()ISOTOP?
S11	57	RADIO()ACTIVE()ISOTOP?
S12	155305	FLOWRATE? OR FLOW()RATE? OR "CC" OR "C.C." OR CUBIC()CENTI- L?
S13	14340	S7(10N) (S9 OR S10 OR S11)
S14	34	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6) AND S8 AND S12
S15	6	S13 AND S14

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File 347:JAPIO Oct 1976-2003/May(Updated 030902)

(c) 2003 JPO & JAPIO

File 350:Derwent WPIX 1963-2003/UD,UM &UP=200361

(c) 2003 Thomson Derwent

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15/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014901832 **Image available**
WPI Acc No: 2002-722538/200278
Related WPI Acc No: 1996-485524; 1997-202015; 1998-195201; 1999-359386
XRAM Acc No: C02-204401
XRPX Acc No: N02-569750

Expandable stent for implantation in patient, comprises open ended
tubular metal body continuously coated on surface side wall structure
with hydrophobic biostable elastomeric material and bio-active material
Patent Assignee: DING N (DING-I); HELMUS M (HELM-I)
Inventor: DING N; HELMUS M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020091433	A1	20020711	US 95424884	A	19950419	200278 B
			US 95526273	A	19950911	
			US 96663490	A	19960613	
			US 96730542	A	19961011	
			US 9812443	A	19980123	
			US 9879645	A	19980515	
			US 200122607	A	20011217	

Priority Applications (No Type Date): US 200122607 A 20011217; US 95424884
A 19950419; US 95526273 A 19950911; US 96663490 A 19960613; US 96730542 A
19961011; US 9812443 A 19980123; US 9879645 A 19980515

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020091433	A1		22	A61F-002/06	CIP of application US 95424884 CIP of application US 95526273 Div ex application US 96663490 Cont of application US 96730542 CIP of application US 9812443 CIP of application US 9879645 Div ex patent US 5837313 CIP of patent US 6358556

Abstract (Basic): US 20020091433 A1

NOVELTY - An expandable stent for implantation in a patient, comprises an open ended tubular metal body (10) having a side wall structure. The structure is continuously coated with a coating containing a hydrophobic biostable elastomeric material and biologically active material, thereby conforms the structure in a manner that preserves the openings (18,20).

USE - For implantation in body lumens e.g. vascular implantation in urologic, pulmonary and gastrointestinal tracts.

ADVANTAGE - The expandable stent contains a coating of biostable elastomers incorporated with drug, thereby the drug is released controllably from the coating structure. The coating process enables the material to adherently conform to and cover the entire surface of the filaments of stent and preserving open lattice nature of the structure. The coatings on the stent releases the drugs over a period of time days to months to inhibit thrombus formation, smooth muscle cell migration and proliferation, inhibit hyperplasia and restenosis and encourage the formation of health neointimal tissue including endothelial cell regeneration and chronic patency after an angioplasty or stent placement. The expandable stent enables the long term delivery of drugs and minimizes interference with the independent mechanical or therapeutic benefits of the stent itself.

DESCRIPTION OF DRAWING(S) - The figure shows the stent section stretched or elongated for insertion.

Cylindrical tubular body (10)

Moving ends (18,20)

pp; 22 DwgNo 2A/15

Title Terms: EXPAND; STENT; IMPLANT; PATIENT; COMPRISE; OPEN; END; TUBE;
METAL; BODY; CONTINUOUS; COATING; SURFACE; SIDE; WALL; STRUCTURE;
HYDROPHOBIC; ELASTOMER; MATERIAL; BIO; ACTIVE; MATERIAL

Derwent Class: A96; B01; B04; B07; D22; P32
International Patent Class (Main): A61F-002/06
File Segment: CPI; EngPI

15/5/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014761599 **Image available**

WPI Acc No: 2002-582303/200262

Related WPI Acc No: 1998-018243; 1998-018245; 1998-018246; 1998-495477;
1998-495478; 1998-495560; 1998-495561; 1998-495562; 1999-357749;
1999-508737; 1999-518519; 2000-572309; 2000-664540; 2002-433264;
2003-089262; 2003-167050

XRAM Acc No: C02-164567

XRPX Acc No: N02-461716

**Treatment of intravascular occlusion comprises delivering fluid
containing occlusion - treating drug such that at least portion of
drug contacts with intravascular occlusive device**

Patent Assignee: ZADNO-AZIZI G (ZADN-I)

Inventor: ZADNO-AZIZI G

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020062119	A1	20020523	US 96650464	A	19960520	200262 B
			US 97812139	A	19970306	
			US 97812570	A	19970306	
			US 97812876	A	19970306	
			US 97813807	A	19970306	
			US 97813810	A	19970306	
			US 97933816	A	19970919	
			US 97975723	A	19971120	
			US 9849712	A	19980327	
			US 9849857	A	19980327	
			US 99270150	A	19990316	
			US 99314054	A	19990518	
			US 99415607	A	19991008	
			US 99438030	A	19991110	
			US 2000537471	A	20000324	
			US 2001837872	A	20010417	
			US 200135389	A	20011228	

Priority Applications (No Type Date): US 200135389 A 20011228; US 96650464
A 19960520; US 97812139 A 19970306; US 97812570 A 19970306; US 97812876 A
19970306; US 97813807 A 19970306; US 97813810 A 19970306; US 97933816 A
19970919; US 97975723 A 19971120; US 9849712 A 19980327; US 9849857 A
19980327; US 99270150 A 19990316; US 99314054 A 19990518; US 99415607 A
19991008; US 99438030 A 19991110; US 2000537471 A 20000324; US 2001837872
A 20010417

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020062119	A1		27	A61M-031/00	CIP of application US 96650464
					CIP of application US 97812139
					Cont of application US 97812570
					Cont of application US 97812876
					CIP of application US 97813807
					CIP of application US 97813810
					CIP of application US 97933816
					CIP of application US 97975723
					CIP of application US 9849712
					Cont of application US 9849857
					CIP of application US 99270150
					Cont of application US 99314054
					Cont of application US 99415607
					CIP of application US 99438030
					CIP of application US 2000537471
					CIP of application US 2001837872

Abstract (Basic): US 20020062119 A1

NOVELTY - Treatment of intravascular occlusion (18) comprises delivering fluid containing an occlusion - treating drug such that at least a portion of the drug contacts an intravascular occlusive device .

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method for crossing an intravascular occlusion in a blood vessel comprising (i) delivering a hollow wire in a proximal to distal direction past the occlusion ; and (ii) delivering fluids through a lumen in the hollow wire to dissolve the occlusion while crossing of the occlusion with the hollow wire .

ACTIVITY - Cardiant; Circulatory-Gen.

No suitable biological data given.

MECHANISM OF ACTION - None given in source material.

USE - The method is used for treating an intravascular occlusion . It is also suited for treating stenosis or occlusions within saphenous vein grafts, coronary arteries , or cerebral arteries .

ADVANTAGE - The method decreases the risks to the patient.

DESCRIPTION OF DRAWING(S) - The figure is a partial cross-sectional view of a guidewire having an occlusion balloon and an aspiration catheter crossing an occlusion .

Guidewire (14)

Occlusion (18)

pp; 27 DwgNo 6A/13

Title Terms: TREAT; INTRAVASCULAR ; OCCLUDE ; COMPRISE; DELIVER; FLUID;
CONTAIN; OCCLUDE ; TREAT; DRUG; PORTION; DRUG; CONTACT; INTRAVASCULAR ;
OCCLUDE ; DEVICE

Derwent Class: B07; P34

International Patent Class (Main): A61M-031/00

File Segment: CPI; EngPI

15/5/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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014270981 **Image available**

WPI Acc No: 2002-091682/200213

Related WPI Acc No: 2001-362957

XRAM Acc No: C02-028503

XRPX Acc No: N02-067529

Occlusion catheter for ascending aorta comprises catheter tube having first and second lumens and drug release aperture, and balloon
Patent Assignee: VAYU KK (VAYU-N); KUMENO T (KUME-I); TSUTSUI N (TSUT-I);
YOZU R (YOZU-I)

Inventor: KUMENO T; TSUTSUI N; YOZU R

Number of Countries: 029 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1159984	A1	20011205	EP 2001108396	A	20010403	200213 B
CA 2342597	A1	20011129	CA 2342597	A	20010403	200213
JP 2002052083	A	20020219	JP 2001104525	A	20010403	200229
US 20030167038	A1	20030904	US 2001846002	A	20010430	200359

Priority Applications (No Type Date): JP 2000158152 A 20000529; JP 99283371 A 19991004

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1159984 A1 E 27 A61M-025/10

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI TR

CA 2342597 A1 E A61M-025/04

JP 2002052083 A 11 A61M-025/00

US 20030167038 A1 A61M-029/00

Abstract (Basic): EP 1159984 A1

NOVELTY - An occlusion catheter comprises a catheter tube having a first lumen (s) and a second lumen , and a balloon provided on the outer circumference of the distal end of the tube. The tube is provided with a drug release aperture for releasing a drug supplied through the second lumen .

DETAILED DESCRIPTION - An occlusion catheter comprises a catheter tube (3) having a first lumen (s) and a second lumen , and a balloon (5) provided on the outer circumference of the distal end of the tube which inflates /deflates with supply or drainage of a fluid through the first lumen to obstruct the blood flow within the ascending aorta when inflated . The tube is provided with a drug release aperture (23) for releasing a drug supplied through the second lumen in the position closer to the proximal end than the site where the blood flow is obstructed by the balloon on the outer circumference of the distal end of the tube.

An INDEPENDENT CLAIM is also included for a method of using an occlusion catheter comprising making an incision or a hole in the chest to provide access to the ascending aorta (1) from the outside, creating an opening at an insertion site of the aorta, expanding the opening with a dilator, inserting the occlusion catheter into the aorta through the opening, fixing the catheter to the aorta, placing a balloon in a proper indwelling position, inflating the balloon to occlude the aorta, and releasing a cardiac muscle protective drug from a drug release aperture to deliver the drug to the vicinity of the coronary ostium.

USE - For the ascending aorta.

ADVANTAGE - The device is capable of obstructing blood flow within the ascending aorta without inserting through the femoral artery . It enables delivery of a cardiac muscle protective drug to the vicinity of the coronary ostium, and is capable of maintaining the condition where the balloon is placed in proper indwelling position. It also facilitates increase of the flow rate of the cardiac muscle protective drug.

DESCRIPTION OF DRAWING(S) - The figure shows a side view of the occlusion catheter .

Ascending aorta (1)

Catheter tube (3)

Balloon (5)

Guide wire (22)

Drug release aperture (23)

pp; 27 DwgNo 1/15

Title Terms: OCCLUDE ; CATHETER ; ASCEND; AORTA; COMPRISE; CATHETER ; TUBE; FIRST; SECOND; LUMEN ; DRUG; RELEASE; APERTURE; BALLOON

Derwent Class: A96; B07; P31; P34

International Patent Class (Main): A61M-025/00; A61M-025/04; A61M-025/10; A61M-029/00

International Patent Class (Additional): A61B-017/12; A61M-001/36; A61M-039/00

File Segment: CPI; EngPI

15/5/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013750721 **Image available**

WPI Acc No: 2001-234950/200124

XRAM Acc No: C01-070347

XRPX Acc No: N01-168024

Pressure-based lumen mapping apparatus for e.g., stenosis

identification by set of pressure measurements, comprises pressure wire, pressure sensor, pull back mechanism, and processor

Patent Assignee: FLORENCE MEDICAL LTD (FLOR-N)

Inventor: BARAK C; DGANY E; NOSKOWICZ S H; SHALMAN E

Number of Countries: 094 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200113779	A2	20010301	WO 2000IL508	A	20000824	200124 B

Priority Applications (No Type Date): US 99155110 P 19990922; US 99150567 P 19990825

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200113779 A2 E 78 A61B-000/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200067222 A A61B-000/00 Based on patent WO 200113779

Abstract (Basic): WO 200113779 A2

NOVELTY - A pressure-based **lumen** mapping apparatus includes:

- (i) a pressure wire for insertion to the **lumen** ;
- (ii) a pressure sensor connected to the pressure wire for measuring pressure inside the **lumen** ;
- (iii) a pull back mechanism for moving the pressure wire in predetermined manner; and
- (iv) a processor for processing the pressure measurements

DETAILED DESCRIPTION - A pressure-based **lumen** mapping apparatus comprises:

- (i) a pressure wire (60) for insertion to the **lumen** ;
- (ii) a pressure sensor (40) connected to the pressure wire for measuring pressure inside the **lumen** ;
- (iii) a pull back mechanism (50) for moving the pressure wire in predetermined manner; and
- (iv) a processor for processing the pressure measurements to obtain parameters of fluid dynamics equation.

The pressure is measured at various points during the movement of the pressure wire.

The processor uses the pressure measurement to inversely obtain parameters of a fluid dynamics equation for mapping the **lumen** .

An INDEPENDENT CLAIM is also included for a method of pressure-based **lumen** mapping by:

- (a) inserting a pressure wire with pressure sensor to the **lumen** ;
- (b) moving the pressure wire from one point to another point along the **lumen** , while simultaneously measuring the pressure; and
- (c) using the pressure measurement obtained during the movement, obtaining parameters of a fluid dynamics equation to provide at least one parameter of the **lumen** .

USE - The apparatus is used for:

- (1) **stenosis** identification by set of pressure measurements;
- (2) **stenosis** localization in the **artery** ;
- (3) determining length, minimal diameter, and severity of **stenosis** ;
- (4) hemodynamic reconstruction of **stenosis** geometry;
- (5) calculating average **flow rate** in the **occluded artery** ;
- (6) determination of average blood velocity; and
- (7) determination of pulsatile index from the known flow in the **artery** .

The above data are essential for optimal selection of stent or **balloon** for the required **inflated** pressure and contact area, and for **drug delivery** .

DESCRIPTION OF DRAWING(S) - The figure is a schematic isometric view of the pressure-based **lumen** mapping apparatus.

Pressure sensor (40)

Pull back mechanism (50)

Pressure wire (60)

pp; 78 DwgNo 1/33

Title Terms: PRESSURE; BASED; **LUMEN** ; MAP; APPARATUS; **STENOSIS** ; IDENTIFY ; SET; PRESSURE; MEASURE; COMPRISE; PRESSURE; WIRE; PRESSURE; SENSE; PULL ; BACK; MECHANISM; PROCESSOR

Derwent Class: B07; P31

International Patent Class (Main): A61B-000/00

File Segment: CPI; EngPI

15/5/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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012793966
WPI Acc No: 1999-600195/199951
Related WPI Acc No: 1999-518523
XRAM Acc No: C99-174650
XRPX Acc No: N99-442375

Inhibition of restenosis by local application of e.g. hydrogen peroxide, thus avoiding use of radiation therapy

Patent Assignee: SCIMED LIFE SYSTEMS INC (SCIM-N)
Inventor: HASTINGS R N; UNGS M T; URICK M J; WANG L; YANG D
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5951458	A	19990914	US 96608655	A	19960229	199951 B
			US 97782471	A	19970110	
			US 97812248	A	19970306	
			US 97868482	A	19970603	
			US 97905296	A	19970801	

Priority Applications (No Type Date): US 97905296 A 19970801; US 96608655 A 19960229; US 97782471 A 19970110; US 97812248 A 19970306; US 97868482 A 19970603

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5951458	A		24	A61M-005/00	CIP of application US 96608655 CIP of application US 97782471 CIP of application US 97812248 CIP of application US 97868482 CIP of patent US 5855546 CIP of patent US 5882290

Abstract (Basic): US 5951458 A

NOVELTY - **Restenosis of blood vessels** is inhibited by local application of an oxidizing agent, hydroxyl ions or a free radical generating agent.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(A) inhibiting **restenosis** of a **blood vessel** wall, comprising locally applying an oxidizing agent to the vessel walls;

(B) inhibiting **restenosis** of a **blood vessel** wall, comprising locally applying a free radical generating agent to the vessel walls; and

(C) inhibiting **restenosis** of a **stenosed coronary** vessel region, comprising locally applying hydroxyl ions to the vessel region.

ACTIVITY - Vasotropic; antirestenosis.

MECHANISM OF ACTION - None given.

USE - The processes are useful for preventing **restenosis** of **blood vessels**, especially **coronary arteries**.

ADVANTAGE - Local delivery of oxidizing agent avoids the need for the specialized equipment and personnel associated with use of radiation to prevent **restenosis**.

pp; 24 DwgNo 0/23

Title Terms: INHIBIT; LOCAL; APPLY; HYDROGEN; PEROXIDE; AVOID; RADIATE; THERAPEUTIC

Derwent Class: B06; B07; P34

International Patent Class (Main): A61M-005/00

File Segment: CPI; EngPI

15/5/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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010742331 **Image available**

WPI Acc No: 1996-239286/199624

XRAM Acc No: C96-076341

XRPX Acc No: N96-200305

Device for infusing agent adjacent to blood vessel wall - has ports in distal segment which can be formed into expanded helical coil to leave high flow rate central lumen

Patent Assignee: MICRO THERAPEUTICS INC (MICR-N)

Inventor: CRAGG A H; EVANS S M; WALLACE G B; CRAGG M D A H

Number of Countries: 019 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9613295	A1	19960509	WO 95US13414	A	19951018	199624 B
CA 2160847	A	19960421	CA 2160847	A	19951018	199634
US 5554114	A	19960910	US 94326609	A	19941020	199642
EP 787018	A1	19970806	EP 95938787	A	19951018	199736
			WO 95US13414	A	19951018	
JP 10509350	W	19980914	WO 95US13414	A	19951018	199847
			JP 96514640	A	19951018	

Priority Applications (No Type Date): US 94326609 A 19941020

Cited Patents: US 5116309

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 9613295	A1	E	31	A61M-025/00	
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Designated States (National): JP

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

US 5554114	A		13	A61M-025/00	
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EP 787018	A1	E		A61M-025/00	Based on patent WO 9613295
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Designated States (Regional): BE DE FR GB IT NL

JP 10509350	W		35	A61M-025/00	Based on patent WO 9613295
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CA 2160847	A			A61M-025/01	
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Abstract (Basic): WO 9613295 A

Device for infusing a drug or other agent into a peripheral low blood flow rate region adjacent to a blood vessel wall comprises a tube with infusion ports (18) along and around a distal segment (26) following a proximal straight segment. The distal segment can be formed into an expanded helical coil of not less than 2 turns leaving a central higher flow rate lumen. In the coil, the ports face the vessel wall, adjacent coil turns and the central lumen. The distal segment pref. has a sheath around a coiled wire and is biased towards expanded state so that it can be contracted by a core wire for advancement and expand when the wire is withdrawn.

USE - E.g. to deliver a lytic agent to a blood clot, or an agent to a vessel wall after angioplasty.

ADVANTAGE - Permits simpler and less expensive drug delivery to a vessel wall or obstruction while allowing the blood to flow centrally.

Dwg.1/13

Title Terms: DEVICE; INFUSION; AGENT; ADJACENT; BLOOD; VESSEL; WALL; PORT; DISTAL; SEGMENT; CAN; FORMING; EXPAND; HELICAL; COIL; LEAVE; HIGH; FLOW; RATE; CENTRAL; LUMEN

Derwent Class: B07; P34

International Patent Class (Main): A61M-025/00; A61M-025/01

International Patent Class (Additional): A61M-025/09

File Segment: CPI; EngPI

22/5,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014901832 **Image available**
WPI Acc No: 2002-722538/200278
Related WPI Acc No: 1996-485524; 1997-202015; 1998-195201; 1999-359386
XRAM Acc No: C02-204401
XRPX Acc No: N02-569750

Expandable stent for implantation in patient, comprises open ended
tubular metal body continuously coated on surface side wall structure
with hydrophobic biostable elastomeric material and bio-active material
Patent Assignee: DING N (DING-I); HELMUS M (HELM-I)
Inventor: DING N; HELMUS M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020091433	A1	20020711	US 95424884	A	19950419	200278 B
			US 95526273	A	19950911	
			US 96663490	A	19960613	
			US 96730542	A	19961011	
			US 9812443	A	19980123	
			US 9879645	A	19980515	
			US 200122607	A	20011217	

Priority Applications (No Type Date): US 200122607 A 20011217; US 95424884
A 19950419; US 95526273 A 19950911; US 96663490 A 19960613; US 96730542 A
19961011; US 9812443 A 19980123; US 9879645 A 19980515

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020091433	A1	22	A61F-002/06		CIP of application US 95424884 CIP of application US 95526273 Div ex application US 96663490 Cont of application US 96730542 CIP of application US 9812443 CIP of application US 9879645 Div ex patent US 5837313 CIP of patent US 6358556

Abstract (Basic): US 20020091433 A1

NOVELTY - An expandable stent for implantation in a patient,
comprises an open ended tubular metal body (10) having a side wall
structure. The structure is continuously coated with a coating
containing a hydrophobic biostable elastomeric material and
biologically active material, thereby conforms the structure in a
manner that preserves the openings (18,20).

USE - For implantation in body lumens e.g. vascular
implantation in urologic, pulmonary and gastrointestinal tracts.

ADVANTAGE - The expandable stent contains a coating of biostable
elastomers incorporated with drug, thereby the drug is released
controllably from the coating structure. The coating process enables
the material to adherently conform to and cover the entire surface of
the filaments of stent and preserving open lattice nature of the
structure. The coatings on the stent releases the drugs over a period
of time days to months to inhibit thrombus formation, smooth muscle
cell migration and proliferation, inhibit hyperplasia and restenosis
and encourage the formation of health neointimal tissue including
endothelial cell regeneration and chronic patency after an angioplasty
or stent placement. The expandable stent enables the long term
delivery of drugs and minimizes interference with the independent
mechanical or therapeutic benefits of the stent itself.

DESCRIPTION OF DRAWING(S) - The figure shows the stent section
stretched or elongated for insertion.

Cylindrical tubular body (10)

Moving ends (18,20)

pp; 22 DwgNo 2A/15

Title Terms: EXPAND; STENT; IMPLANT; PATIENT; COMPRISE; OPEN; END; TUBE;
METAL; BODY; CONTINUOUS; COATING; SURFACE; SIDE; WALL; STRUCTURE;
HYDROPHOBIC; ELASTOMER; MATERIAL; BIO; ACTIVE; MATERIAL

Derwent Class: A96; B01; B04; B07; D22; P32
International Patent Class (Main): A61F-002/06
File Segment: CPI; EngPI

Abstract (Basic):

... For implantation in body lumens e.g. vascular implantation
in urologic, pulmonary and gastrointestinal tracts...

...the stent releases the drugs over a period of time days to months to
inhibit thrombus formation, smooth muscle cell migration and
proliferation, inhibit hyperplasia and restenosis and encourage the
formation of health neointimal tissue including endothelial cell
regeneration and chronic patency after an angioplasty or stent
placement. The expandable stent enables the long term delivery of
drugs and minimizes interference with the independent mechanical or
therapeutic benefits of the stent itself...

Technology Focus:

... an air brush at a pressure of 15-25 psi, and at a spray nozzle
flow rate of 4-10 ml. The coating comprises one or more coating
layers...

22/5,K/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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014761599 **Image available**

WPI Acc No: 2002-582303/200262

Related WPI Acc No: 1998-018243; 1998-018245; 1998-018246; 1998-495477;
1998-495478; 1998-495560; 1998-495561; 1998-495562; 1999-357749;
1999-508737; 1999-518519; 2000-572309; 2000-664540; 2002-433264;
2003-089262; 2003-167050

XRAM Acc No: C02-164567

XRPX Acc No: N02-461716

Treatment of intravascular occlusion comprises delivering fluid
containing occlusion - treating drug such that at least portion of
drug contacts with intravascular occlusive device

Patent Assignee: ZADNO-AZIZI G (ZADN-I)

Inventor: ZADNO-AZIZI G

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020062119	A1	20020523	US 96650464	A	19960520	200262 B
			US 97812139	A	19970306	
			US 97812570	A	19970306	
			US 97812876	A	19970306	
			US 97813807	A	19970306	
			US 97813810	A	19970306	
			US 97933816	A	19970919	
			US 97975723	A	19971120	
			US 9849712	A	19980327	
			US 9849857	A	19980327	
			US 99270150	A	19990316	
			US 99314054	A	19990518	
			US 99415607	A	19991008	
			US 99438030	A	19991110	
			US 2000537471	A	20000324	
			US 2001837872	A	20010417	
			US 200135389	A	20011228	

Priority Applications (No Type Date): US 200135389 A 20011228; US 96650464
A 19960520; US 97812139 A 19970306; US 97812570 A 19970306; US 97812876 A
19970306; US 97813807 A 19970306; US 97813810 A 19970306; US 97933816 A
19970919; US 97975723 A 19971120; US 9849712 A 19980327; US 9849857 A
19980327; US 99270150 A 19990316; US 99314054 A 19990518; US 99415607 A
19991008; US 99438030 A 19991110; US 2000537471 A 20000324; US 2001837872
A 20010417

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020062119	A1	27	A61M-031/00		CIP of application US 96650464 CIP of application US 97812139 Cont of application US 97812570 Cont of application US 97812876 CIP of application US 97813807 CIP of application US 97813810 CIP of application US 97933816 CIP of application US 97975723 CIP of application US 9849712 Cont of application US 9849857 CIP of application US 99270150 Cont of application US 99314054 Cont of application US 99415607 CIP of application US 99438030 CIP of application US 2000537471 CIP of application US 2001837872

Abstract (Basic): US 20020062119 A1

NOVELTY - Treatment of **intravascular occlusion** (18) comprises **delivering** fluid containing an **occlusion - treating drug** such that at least a portion of the drug contacts an **intravascular occlusive device** .

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method for crossing an **intravascular occlusion** in a **blood vessel** comprising (i) delivering a **hollow wire** in a proximal to distal direction past the **occlusion** ; and (ii) delivering fluids through a **lumen** in the **hollow wire** to dissolve the **occlusion** while crossing of the **occlusion** with the **hollow wire** .

ACTIVITY - Cardiant; Circulatory-Gen.

No suitable biological data given.

MECHANISM OF ACTION - None given in source material.

USE - The method is used for treating an **intravascular occlusion** . It is also suited for treating **stenosis** or **occlusions** within **saphenous vein grafts**, **coronary arteries** , or **cerebral arteries** .

ADVANTAGE - The method decreases the risks to the patient.

DESCRIPTION OF DRAWING(S) - The figure is a partial cross-sectional view of a guidewire having an **occlusion balloon** and an aspiration **catheter** crossing an **occlusion** .

Guidewire (14)

Occlusion (18)

pp; 27 DwgNo 6A/13

Title Terms: TREAT; **INTRAVASCULAR** ; **OCCLUDE** ; COMPRISE; DELIVER; FLUID; CONTAIN; **OCCLUDE** ; TREAT; DRUG; PORTION; DRUG; CONTACT; **INTRAVASCULAR** ; **OCCLUDE** ; DEVICE

Derwent Class: B07; P34

International Patent Class (Main): A61M-031/00

File Segment: CPI; EngPI

Treatment of intravascular occlusion comprises delivering fluid containing occlusion - treating drug such that at least portion of drug contacts with intravascular occlusive device

Abstract (Basic):

... Treatment of **intravascular occlusion** (18) comprises **delivering** fluid containing an **occlusion - treating drug** such that at least a portion of the drug contacts an **intravascular occlusive device** .

... An INDEPENDENT CLAIM is included for a method for crossing an **intravascular occlusion** in a **blood vessel** comprising (i) delivering a **hollow wire** in a proximal to distal direction past the **occlusion** ; and (ii) delivering fluids through a **lumen** in the **hollow wire** to dissolve the **occlusion** while crossing of the **occlusion** with the **hollow wire** .

...The method is used for treating an **intravascular occlusion** . It is also suited for treating **stenosis** or **occlusions** within **saphenous**

22/5,K/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014270981 **Image available**
WPI Acc No: 2002-091682/200213
Related WPI Acc No: 2001-362957
XRAM Acc No: C02-028503
XRPX Acc No: N02-067529

Occlusion catheter for ascending aorta comprises catheter tube
having first and second lumens and drug release aperture, and balloon
Patent Assignee: VAYU KK (VAYU-N); KUMENO T (KUME-I); TSUTSUI N (TSUT-I);
YOZU R (YOZU-I)
Inventor: KUMENO T; TSUTSUI N; YOZU R
Number of Countries: 029 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1159984	A1	20011205	EP 2001108396	A	20010403	200213 B
CA 2342597	A1	20011129	CA 2342597	A	20010403	200213
JP 2002052083	A	20020219	JP 2001104525	A	20010403	200229
US 20030167038	A1	20030904	US 2001846002	A	20010430	200359

Priority Applications (No Type Date): JP 2000158152 A 20000529; JP 99283371
A 19991004

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 1159984	A1	E	27	A61M-025/10	
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Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI TR

CA 2342597	A1	E		A61M-025/04	
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JP 2002052083	A		11	A61M-025/00	
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US 20030167038	A1			A61M-029/00	
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Abstract (Basic): EP 1159984 A1

NOVELTY - An occlusion catheter comprises a catheter tube
having a first lumen (s) and a second lumen , and a balloon
provided on the outer circumference of the distal end of the tube. The
tube is provided with a drug release aperture for releasing a drug
supplied through the second lumen .

DETAILED DESCRIPTION - An occlusion catheter comprises a
catheter tube (3) having a first lumen (s) and a second lumen , and
a balloon (5) provided on the outer circumference of the distal end
of the tube which inflates /deflates with supply or drainage of a
fluid through the first lumen to obstruct the blood flow within the
ascending aorta when inflated . The tube is provided with a drug
release aperture (23) for releasing a drug supplied through the second
lumen in the position closer to the proximal end than the site where
the blood flow is obstructed by the balloon on the outer
circumference of the distal end of the tube.

An INDEPENDENT CLAIM is also included for a method of using an
occlusion catheter comprising making an incision or a hole in the
chest to provide access to the ascending aorta (1) from the outside,
creating an opening at an insertion site of the aorta, expanding the
opening with a dilator, inserting the occlusion catheter into the
aorta through the opening, fixing the catheter to the aorta, placing
a balloon in a proper indwelling position, inflating the balloon
to occlude the aorta, and releasing a cardiac muscle protective drug
from a drug release aperture to deliver the drug to the vicinity
of the coronary ostium.

USE - For the ascending aorta.

ADVANTAGE - The device is capable of obstructing blood flow
within the ascending aorta without inserting through the femoral
artery . It enables delivery of a cardiac muscle protective drug to
the vicinity of the coronary ostium, and is capable of maintaining
the condition where the balloon is placed in proper indwelling
position. It also facilitates increase of the flow rate of the
cardiac muscle protective drug.

DESCRIPTION OF DRAWING(S) - The figure shows a side view of the

22/5,K/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014270981 **Image available**
WPI Acc No: 2002-091682/200213
Related WPI Acc No: 2001-362957
XRAM Acc No: C02-028503
XRPX Acc No: N02-067529

Occlusion catheter for ascending aorta comprises catheter tube
having first and second lumens and drug release aperture, and balloon
Patent Assignee: VAYU KK (VAYU-N); KUMENO T (KUME-I); TSUTSUI N (TSUT-I);
YOZU R (YOZU-I)

Inventor: KUMENO T; TSUTSUI N; YOZU R
Number of Countries: 029 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1159984	A1	20011205	EP 2001108396	A	20010403	200213 B
CA 2342597	A1	20011129	CA 2342597	A	20010403	200213
JP 2002052083	A	20020219	JP 2001104525	A	20010403	200229
US 20030167038	A1	20030904	US 2001846002	A	20010430	200359

Priority Applications (No Type Date): JP 2000158152 A 20000529; JP 99283371
A 19991004

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 1159984	A1	E	27	A61M-025/10	
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Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI TR

CA 2342597	A1	E		A61M-025/04	
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JP 2002052083	A		11	A61M-025/00	
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US 20030167038	A1			A61M-029/00	
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Abstract (Basic): EP 1159984 A1

NOVELTY - An occlusion catheter comprises a catheter tube
having a first lumen (s) and a second lumen , and a balloon
provided on the outer circumference of the distal end of the tube. The
tube is provided with a drug release aperture for releasing a drug
supplied through the second lumen .

DETAILED DESCRIPTION - An occlusion catheter comprises a
catheter tube (3) having a first lumen (s) and a second lumen , and
a balloon (5) provided on the outer circumference of the distal end
of the tube which inflates /deflates with supply or drainage of a
fluid through the first lumen to obstruct the blood flow within the
ascending aorta when inflated . The tube is provided with a drug
release aperture (23) for releasing a drug supplied through the second
lumen in the position closer to the proximal end than the site where
the blood flow is obstructed by the balloon on the outer
circumference of the distal end of the tube.

An INDEPENDENT CLAIM is also included for a method of using an
occlusion catheter comprising making an incision or a hole in the
chest to provide access to the ascending aorta (1) from the outside,
creating an opening at an insertion site of the aorta, expanding the
opening with a dilator, inserting the occlusion catheter into the
aorta through the opening, fixing the catheter to the aorta, placing
a balloon in a proper indwelling position, inflating the balloon
to occlude the aorta, and releasing a cardiac muscle protective drug
from a drug release aperture to deliver the drug to the vicinity
of the coronary ostium.

USE - For the ascending aorta.

ADVANTAGE - The device is capable of obstructing blood flow
within the ascending aorta without inserting through the femoral
artery . It enables delivery of a cardiac muscle protective drug to
the vicinity of the coronary ostium, and is capable of maintaining
the condition where the balloon is placed in proper indwelling
position. It also facilitates increase of the flow rate of the
cardiac muscle protective drug.

DESCRIPTION OF DRAWING(S) - The figure shows a side view of the

occlusion catheter .

Ascending aorta (1)

Catheter tube (3)

Balloon (5)

Guide wire (22)

Drug release aperture (23)

pp; 27 DwgNo 1/15

Title Terms: **OCCLUDE ; CATHETER ; ASCEND; AORTA; COMPRISE; CATHETER ; TUBE; FIRST; SECOND; LUMEN ; DRUG; RELEASE; APERTURE; BALLOON**

Derwent Class: A96; B07; P31; P34

International Patent Class (Main): A61M-025/00; A61M-025/04; A61M-025/10; A61M-029/00

International Patent Class (Additional): A61B-017/12; A61M-001/36; A61M-039/00

File Segment: CPI; EngPI

Occlusion catheter for ascending aorta comprises catheter tube having first and second lumens and drug release aperture, and balloon

Abstract (Basic):

... An **occlusion catheter** comprises a **catheter tube** having a first **lumen (s)** and a second **lumen** , and a **balloon** provided on the outer circumference of the distal end of the tube. The tube is provided with a drug release aperture for releasing a drug supplied through the second **lumen** .

... An **occlusion catheter** comprises a **catheter tube (3)** having a first **lumen (s)** and a second **lumen** , and a **balloon (5)** provided on the outer circumference of the distal end of the tube which **inflates /deflates** with supply or drainage of a fluid through the first **lumen** to **obstruct** the blood flow within the ascending aorta when **inflated** . The tube is provided with a drug release aperture (23) for releasing a drug supplied through the second **lumen** in the position closer to the proximal end than the site where the blood flow is **obstructed** by the **balloon** on the outer circumference of the distal end of the tube...

...An **INDEPENDENT CLAIM** is also included for a method of using an **occlusion catheter** comprising making an incision or a hole in the chest to provide access to the...

...at an insertion site of the aorta, expanding the opening with a dilator, inserting the **occlusion catheter** into the aorta through the opening, fixing the **catheter** to the aorta, placing a **balloon** in a proper indwelling position, **inflating** the **balloon** to **occlude** the aorta, and releasing a cardiac muscle protective **drug** from a **drug release aperture** to **deliver** the **drug** to the vicinity of the **coronary ostium**...

...The device is capable of **obstructing** blood flow within the ascending aorta without inserting through the femoral **artery** . It enables **delivery** of a cardiac muscle protective **drug** to the vicinity of the **coronary ostium**, and is capable of maintaining the condition where the **balloon** is placed in proper indwelling position. It also facilitates increase of the **flow rate** of the cardiac muscle protective drug...

...The figure shows a side view of the **occlusion catheter** .

...

... **Catheter tube (3...**

... **Balloon (5**

Technology Focus:

... Preferred Device: At least two drug release apertures are formed proximally than the **balloon** in different directions, respectively, relative to the axial direction of the tube. The **catheter tube** includes a portion from the distal end to a point reinforced with a reinforcement mechanism. The concavity is formed at each end of the **balloon** . The device further comprises a valve provided within the

second **lumen** having a structure capable of passing a guide wire (22) and shutting the fluid flow...

...Preferred Component: The **balloon** is made of polyurethane.
Title Terms: **OCCLUDE** ;

22/5,K/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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013797292 **Image available**
WPI Acc No: 2001-281504/200129
Related WPI Acc No: 2001-367781
XRAM Acc No: C01-085527
XRPX Acc No: N01-200751

Mechanical pump for use in a medical device, for removing unwanted tissues from body lumens or blood vessels , comprises an inner tube, coiled rotor element disposed over outer surface of tube and a jacket securing the rotor to the tube

Patent Assignee: BACCHUS VASCULAR INC (BACC-N)
Inventor: DEMARAIS D M; EVANS M A; EVERSULL C S; LEEFLANG S A; TANNER J C; WATANABE G A; DEMARAIS D

Number of Countries: 023 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200119444	A1	20010322	WO 2000US25581	A	20000918	200129 B
AU 200077038	A	20010417	AU 200077038	A	20000918	200140
EP 1225949	A1	20020731	EP 2000966741	A	20000918	200257
			WO 2000US25581	A	20000918	
US 20020151906	A1	20021017	US 99454517	A	19991206	200270
			US 2002162276	A	20020603	

Priority Applications (No Type Date): US 2000590915 A 20000609; US 99154752 P 19990917; US 99454517 A 19991206; US 2002162276 A 20020603

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200119444 A1 E 49 A61M-029/00

Designated States (National): AU CA JP

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

AU 200077038 A A61M-029/00 Based on patent WO 200119444

EP 1225949 A1 E A61M-029/00 Based on patent WO 200119444

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

US 20020151906 A1 A61B-017/22 Cont of application US 99454517

Abstract (Basic): WO 200119444 A1

NOVELTY - A mechanical pump for use in a medical device comprises an elongated hollow, flexible inner tube (122) with a proximal end, a distal end (132) and a central **lumen** , a first coiled rotor element (142) (with a distal end and a proximal end) disposed over an outer surface of the inner tube and a jacket which secures the coil rotor element to the outer surface of the inner tube.

DETAILED DESCRIPTION - A mechanical pump for use in a medical device comprises an elongated hollow, flexible inner tube (122) with a proximal end, a distal end (132) and a central **lumen** , a first coiled rotor element (142) (with a distal end and a proximal end) disposed over an outer surface of the inner tube and a jacket which secures the coil rotor element to the outer surface of the inner tube.

INDEPENDENT CLAIMS are also included for the following:

(1) an over-the-wire material transport **catheter** comprising a **catheter** body (112) having a proximal end, a distal end and a **lumen** (130) between these and an impeller which is rotatable within the **lumen** of the **catheter** body. The impeller comprises a tubular shaft having a central guidewire **lumen** and a helical rotor (148) extending at least partially over an exterior surface;

(2) a selective infusion-aspiration **catheter** comprising a

catheter body having a proximal end, a distal end and a **lumen** between these, an impeller rotatable within the **lumen** of the **catheter** body and a driver coupled to the impeller to selectively rotate the impeller in a first direction to induce aspiration through the **catheter** body **lumen** or in a second direction to induce infusion through the **catheter** body;

(3) a circulation **catheter** comprising a **catheter** body having a proximal end, a distal end and a **lumen** between these and a first impeller arranged in a **lumen** of the **catheter** body to aspirate materials from the distal end to the proximal end of the **catheter** body and a second impeller arranged in a **lumen** of the **catheter** body to infuse materials from the proximal end to the distal end of the **catheter** body;

(4) a method for making a mechanical pump for use in a medical device comprising:

(a) placing a resilient coiled rotor over an outer surface of a hollow flexible tube; and

(b) forming a jacket over at least a portion of the outer surface of the tube and the coiled rotor so that the coiled rotor is secured to the outer surface of the flexible tube;

(5) a method for making a mechanical pump for use in a medical device comprising forming a helical channel in an outer surface of a hollow flexible tube;

(6) a method for transporting materials between a target site in a body **lumen** of a patient and a location external to the patient comprising:

(a) introducing a distal end of a **catheter** to the target site over a guidewire and rotating; and

(b) rotating a first impeller over a guidewire within a **lumen** of the **catheter** to transport material between the distal and proximal end of the **catheter** ; and

(7) a kit comprising a **catheter** and instructions for its use.

USE - For use in/as medical devices such as **catheters** (claimed) for removing unwanted tissues such as **thrombus** , atheroma, fluids, polyps, cysts or other **obstructive** matter from body **lumens** such as **blood vessels** , ureters, bile ducts or fallopian tubes. The material transport **catheters** may be used to **infuse thrombolytic** and other therapeutic agents and/or aspirate fragmented clot, **thrombus** and other **occlusive** materials in conjunction with **angioplasty** , atherectomy, laser ablation, embolectomy, endarterectomy and other **intravascular** interventions.

ADVANTAGE - The **catheter** efficiently evacuates the fragmented material from the **blood vessel** or body **lumen** , with continuous fluid infusion. Larger particles of fragmented material can be aspirated within a short time. Use of two rotors provides for higher volumetric and mass flows than is achievable using one rotor and the coiled rotors allow for the provision of different fluid **flow rates** to different portions of the **catheter** . The impeller and rotor provide two different streams of the same or different materials to a single or multiple locations within the **catheter** . Two different fluids (chemicals and reagent that cannot be premixed prior to delivery) can also be mixed in situ at the distal end of the **catheter** . Use of a single impeller with a bi-directional flow allows circulation and recirculation of material to a target side within a patient body **lumen** to be achieved.

DESCRIPTION OF DRAWING(S) - The figure shows the partially broken, detailed view of distal end of the clot disruption **catheter** and mechanical pump.

Catheter body (112)

Flexible inner tube (122)

Expansible cage (126)

Lumen (130)

Distal end of shaft (132)

Macerator (140)

Coiled rotor element (142)

Helical rotor (148)

pp; 49 DwgNo 5A/9

Title Terms: MECHANICAL; PUMP; MEDICAL; DEVICE; REMOVE; UNWANTED; TISSUE;

BODY; LUMEN ; BLOOD; VESSEL; COMPRISE; INNER; TUBE; COIL; ROTOR; ELEMENT
; DISPOSABLE; OUTER; SURFACE; TUBE; JACKET; SECURE; ROTOR; TUBE

Derwent Class: B07; P31; P34

International Patent Class (Main): A61B-017/22; A61M-029/00

File Segment: CPI; EngPI

Mechanical pump for use in a medical device, for removing unwanted tissues from body lumens or blood vessels , comprises an inner tube, coiled rotor element disposed over outer surface of tube and a...

Abstract (Basic):

... flexible inner tube (122) with a proximal end, a distal end (132) and a central lumen , a first coiled rotor element (142) (with a distal end and a proximal end) disposed...

... flexible inner tube (122) with a proximal end, a distal end (132) and a central lumen , a first coiled rotor element (142) (with a distal end and a proximal end) disposed...

...1) an over-the-wire material transport catheter comprising a catheter body (112) having a proximal end, a distal end and a lumen (130) between these and an impeller which is rotatable within the lumen of the catheter body. The impeller comprises a tubular shaft having a central guidewire lumen and a helical rotor (148) extending at least partially over an exterior surface...

...2) a selective infusion-aspiration catheter comprising a catheter body having a proximal end, a distal end and a lumen between these, an impeller rotatable within the lumen of the catheter body and a driver coupled to the impeller to selectively rotate the impeller in a first direction to induce aspiration through the catheter body lumen or in a second direction to induce infusion through the catheter body...

...3) a circulation catheter comprising a catheter body having a proximal end, a distal end and a lumen between these and a first impeller arranged in a lumen of the catheter body to aspirate materials from the distal end to the proximal end of the catheter body and a second impeller arranged in a lumen of the catheter body to infuse materials from the proximal end to the distal end of the catheter body...

...6) a method for transporting materials between a target site in a body lumen of a patient and a location external to the patient comprising ...

...a) introducing a distal end of a catheter to the target site over a guidewire and rotating; and...

...b) rotating a first impeller over a guidewire within a lumen of the catheter to transport material between the distal and proximal end of the catheter ; and...

...7) a kit comprising a catheter and instructions for its use...

...For use in/as medical devices such as catheters (claimed) for removing unwanted tissues such as thrombus , atheroma, fluids, polyps, cysts or other obstructive matter from body lumens such as blood vessels , ureters, bile ducts or fallopian tubes. The material transport catheters may be used to infuse thrombolytic and other therapeutic agents and/or aspirate fragmented clot, thrombus and other occlusive materials in conjunction with angioplasty , atherectomy, laser ablation, embolectomy, endarterectomy and other intravascular interventions...

...The catheter efficiently evacuates the fragmented material from the blood vessel or body lumen , with continuous fluid infusion. Larger particles of fragmented material can be aspirated within a short...

...achievable using one rotor and the coiled rotors allow for the provision

of different fluid flow rates to different portions of the catheter . The impeller and rotor provide two different streams of the same or different materials to a single or multiple locations within the catheter . Two different fluids (chemicals and reagent that cannot be premixed prior to delivery) can also be mixed in situ at the distal end of the catheter . Use of a single impeller with a bi-directional flow allows circulation and recirculation of material to a target side within a patient body lumen to be achieved...

...The figure shows the partially broken, detailed view of distal end of the clot disruption catheter and mechanical pump...

... Catheter body (112...

... Lumen (130

Technology Focus:

... Preferred Catheters : The over-the-wire material transport, selective infusion-aspiration and circulation catheters further comprise a material capture device disposed at the distal end of the catheter body. The material capture device comprises a funnel structure, a macerator (140) and an expansible...

...portion of an inner surface of the expansible cage. Alternatively, the distal end of the catheter body is substantially free from surrounding structure. For the circulation catheter , the first impeller is disposed in a first lumen of the catheter body and the second impeller is disposed in a second lumen of the catheter body. The first and second impellers each comprise a shaft having a helical rotor (148) extending at least partially over an exterior surface and the catheter further comprises a tubular shaft. The first impeller comprises a first helical rotor extending at...

...comprises a second helical rotor extending at least partially over an inner surface of the lumen .

...

...further comprises a second coiled rotor element disposed over an inner surface of the central lumen of the inner tube. The first and second coiled rotors are counterwound or, alternatively, co...

...Preferred Transporting Method: The method for transporting materials between a target site in a body lumen of a patient and a location external to the patient further comprises applying a vacuum to a lumen of the catheter to assist in transporting material from the distal end. The impeller is selectively rotated to transport material from the distal end to the proximal end of the catheter or from the proximal end to the distal end of the catheter . The method also comprises delivering the material to be transported to the catheter lumen under pressure to assist in transporting material through the catheter lumen to the distal end of the catheter . The impeller is selectively rotated to infuse material to the body lumen at one time and selectively rotated to aspirate material from the body lumen at another time. The method further comprises rotating a second impeller in the catheter body to selectively transport material from the proximal end of the catheter to the distal end simultaneously with the transport of material to the proximal end from the distal end of the catheter , so that a circulation of material is established. The first and second impellers are counterwound...

...The method for selectively infusing and aspirating material between a target site in a body lumen of a patient and a location external to the patient preferably comprises) introducing a distal end of a catheter to the target site...

...b) rotating an impeller within a lumen of the catheter in a first direction to aspirate material from the target site; and...

...The method for selectively infusing and aspirating material through a target site in a body lumen of a patient preferably comprises...

...a) introducing a distal end of a catheter to the target site...

...b) rotating a first impeller within a lumen of the catheter to transport material to the target site; and...

...c) rotating a second impeller within a lumen of the catheter to transport material away from the target site...

...The first and second impellers are located in separate lumens within the catheter or, alternatively, within the same lumen within the catheter. When the first and second impellers are located within the same lumen within the catheter, the impellers comprise a flexible inner tube having a first helical rotor formed over an...

...Title Terms: LUMEN ;

22/5,K/5 (Item 5 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
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013750721 **Image available**
 WPI Acc No: 2001-234950/200124
 XRAM Acc No: C01-070347
 XRPX Acc No: N01-168024

Pressure-based lumen mapping apparatus for e.g., stenosis identification by set of pressure measurements, comprises pressure wire, pressure sensor, pull back mechanism, and processor
 Patent Assignee: FLORENCE MEDICAL LTD (FLOR-N)
 Inventor: BARAK C; DGANY E; NOSKOWICZ S H; SHALMAN E
 Number of Countries: 094 Number of Patents: 002
 Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200113779	A2	20010301	WO 2000IL508	A	20000824	200124 B
AU 200067222	A	20010319	AU 200067222	A	20000824	200136

Priority Applications (No Type Date): US 99155110 P 19990922; US 99150567 P 19990825

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200113779	A2	E	78	A61B-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200067222 A A61B-000/00 Based on patent WO 200113779

Abstract (Basic): WO 200113779 A2

NOVELTY - A pressure-based lumen mapping apparatus includes:
 (i) a pressure wire for insertion to the lumen ;
 (ii) a pressure sensor connected to the pressure wire for measuring pressure inside the lumen ;
 (iii) a pull back mechanism for moving the pressure wire in predetermined manner; and

(iv) a processor for processing the pressure measurements
 DETAILED DESCRIPTION - A pressure-based lumen mapping apparatus comprises:

(i) a pressure wire (60) for insertion to the lumen ;
 (ii) a pressure sensor (40) connected to the pressure wire for measuring pressure inside the lumen ;
 (iii) a pull back mechanism (50) for moving the pressure wire in predetermined manner; and
 (iv) a processor for processing the pressure measurements to obtain parameters of fluid dynamics equation.

The pressure is measured at various points during the movement of the pressure wire.

The processor uses the pressure measurement to inversely obtain

22/5,K/5 (Item 5 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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013750721 **Image available**
WPI Acc No: 2001-234950/200124
XRAM Acc No: C01-070347
XRPX Acc No: N01-168024

Pressure-based lumen mapping apparatus for e.g., stenosis identification by set of pressure measurements, comprises pressure wire, pressure sensor, pull back mechanism, and processor

Patent Assignee: FLORENCE MEDICAL LTD (FLOR-N)

Inventor: BARAK C; DGANY E; NOSKOWICZ S H; SHALMAN E

Number of Countries: 094 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200113779	A2	20010301	WO 2000IL508	A	20000824	200124 B
AU 200067222	A	20010319	AU 200067222	A	20000824	200136

Priority Applications (No Type Date): US 99155110 P 19990922; US 99150567 P 19990825

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 200113779	A2	E	78	A61B-000/00	
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Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200067222	A			A61B-000/00	Based on patent WO 200113779
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Abstract (Basic): WO 200113779 A2

NOVELTY - A pressure-based **lumen** mapping apparatus includes:

- (i) a pressure wire for insertion to the **lumen** ;
- (ii) a pressure sensor connected to the pressure wire for measuring pressure inside the **lumen** ;
- (iii) a pull back mechanism for moving the pressure wire in predetermined manner; and
- (iv) a processor for processing the pressure measurements

DETAILED DESCRIPTION - A pressure-based **lumen** mapping apparatus comprises:

- (i) a pressure wire (60) for insertion to the **lumen** ;
- (ii) a pressure sensor (40) connected to the pressure wire for measuring pressure inside the **lumen** ;
- (iii) a pull back mechanism (50) for moving the pressure wire in predetermined manner; and
- (iv) a processor for processing the pressure measurements to obtain parameters of fluid dynamics equation.

The pressure is measured at various points during the movement of the pressure wire.

The processor uses the pressure measurement to inversely obtain parameters of a fluid dynamics equation for mapping the **lumen** .

An INDEPENDENT CLAIM is also included for a method of pressure-based **lumen** mapping by:

- (a) inserting a pressure wire with pressure sensor to the **lumen** ;
- (b) moving the pressure wire from one point to another point along the **lumen** , while simultaneously measuring the pressure; and
- (c) using the pressure measurement obtained during the movement, obtaining parameters of a fluid dynamics equation to provide at least one parameter of the **lumen** .

USE - The apparatus is used for:

- (1) **stenosis** identification by set of pressure measurements;
- (2) **stenosis** localization in the **artery** ;
- (3) determining length, minimal diameter, and severity of **stenosis** ;

- (4) hemodynamic reconstruction of **stenosis** geometry;
- (5) calculating average **flow rate** in the **occluded artery** ;

- (6) determination of average blood velocity; and
- (7) determination of pulsatile index from the known flow in the artery .

The above data are essential for optimal selection of stent or balloon for the required inflated pressure and contact area, and for drug delivery .

DESCRIPTION OF DRAWING(S) - The figure is a schematic isometric view of the pressure-based lumen mapping apparatus.

Pressure sensor (40)

Pull back mechanism (50)

Pressure wire (60)

pp; 78 DwgNo 1/33

Title Terms: PRESSURE; BASED; LUMEN ; MAP; APPARATUS; STENOSIS ; IDENTIFY ; SET; PRESSURE; MEASURE; COMPRISE; PRESSURE; WIRE; PRESSURE; SENSE; PULL ; BACK; MECHANISM; PROCESSOR

Derwent Class: B07; P31

International Patent Class (Main): A61B-000/00

File Segment: CPI; EngPI

Pressure-based lumen mapping apparatus for e.g., stenosis identification by set of pressure measurements, comprises pressure wire, pressure sensor, pull back mechanism, and...

Abstract (Basic):

... A pressure-based lumen mapping apparatus includes...

...i) a pressure wire for insertion to the lumen ;
(...

...ii) a pressure sensor connected to the pressure wire for measuring pressure inside the lumen ;
(

... A pressure-based lumen mapping apparatus comprises...

...i) a pressure wire (60) for insertion to the lumen ;
(...

...ii) a pressure sensor (40) connected to the pressure wire for measuring pressure inside the lumen ;
(...

...the pressure measurement to inversely obtain parameters of a fluid dynamics equation for mapping the lumen .

...An INDEPENDENT CLAIM is also included for a method of pressure-based lumen mapping by...

...a) inserting a pressure wire with pressure sensor to the lumen ;
(...

...b) moving the pressure wire from one point to another point along the lumen , while simultaneously measuring the pressure; and...

...obtaining parameters of a fluid dynamics equation to provide at least one parameter of the lumen .
...

...1) stenosis identification by set of pressure measurements...

...2) stenosis localization in the artery ;
(...

...3) determining length, minimal diameter, and severity of stenosis ;
(...

...4) hemodynamic reconstruction of stenosis geometry...

...5) calculating average flow rate in the occluded artery ;
(...

...7) determination of pulsatile index from the known flow in the artery .

...

...The above data are essential for optimal selection of stent or balloon for the required inflated pressure and contact area, and for drug delivery .

...

...The figure is a schematic isometric view of the pressure-based lumen mapping apparatus

Technology Focus:

... Preferred Parameters: The lumen map includes...

...1) geometrical parameter including minimal diameter of the lumen , length of stenosis , and percent area of stenosis ;
(...)

...4) location of stenosis .

...

...Preferred Component: The pressure wire is guide wire or catheter .

...Title Terms: LUMEN ;

22/5,K/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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012793966

WPI Acc No: 1999-600195/199951

Related WPI Acc No: 1999-518523

XRAM Acc No: C99-174650

XRPX Acc No: N99-442375

Inhibition of restenosis by local application of e.g. hydrogen peroxide, thus avoiding use of radiation therapy

Patent Assignee: SCIMED LIFE SYSTEMS INC (SCIM-N)

Inventor: HASTINGS R N; UNGS M T; URICK M J; WANG L; YANG D

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5951458	A	19990914	US 96608655	A	19960229	199951 B
			US 97782471	A	19970110	
			US 97812248	A	19970306	
			US 97868482	A	19970603	
			US 97905296	A	19970801	

Priority Applications (No Type Date): US 97905296 A 19970801; US 96608655 A 19960229; US 97782471 A 19970110; US 97812248 A 19970306; US 97868482 A 19970603

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5951458	A	24	A61M-005/00		CIP of application US 96608655
					CIP of application US 97782471
					CIP of application US 97812248
					CIP of application US 97868482
					CIP of patent US 5855546
					CIP of patent US 5882290

Abstract (Basic): US 5951458 A

NOVELTY - Restenosis of blood vessels is inhibited by local application of an oxidizing agent, hydroxyl ions or a free radical generating agent.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(A) inhibiting restenosis of a blood vessel wall, comprising locally applying an oxidizing agent to the vessel walls;

(B) inhibiting restenosis of a blood vessel wall, comprising locally applying a free radical generating agent to the vessel walls; and

(C) inhibiting **restenosis** of a **stenosed coronary vessel** region, comprising locally applying hydroxyl ions to the vessel region.

ACTIVITY - Vasotropic; antirestenosis.

MECHANISM OF ACTION - None given.

USE - The processes are useful for preventing **restenosis** of **blood vessels**, especially **coronary arteries**.

ADVANTAGE - Local delivery of oxidizing agent avoids the need for the specialized equipment and personnel associated with use of radiation to prevent **restenosis**.

pp; 24 DwgNo 0/23

Title Terms: INHIBIT; LOCAL; APPLY; HYDROGEN; PEROXIDE; AVOID; RADIATE; THERAPEUTIC

Derwent Class: B06; B07; P34

International Patent Class (Main): A61M-005/00

File Segment: CPI; EngPI

Inhibition of restenosis by local application of e.g. hydrogen peroxide, thus avoiding use of radiation therapy

Abstract (Basic):

... **Restenosis** of **blood vessels** is inhibited by local application of an oxidizing agent, hydroxyl ions or a free radical

... A) inhibiting **restenosis** of a **blood vessel wall**, comprising locally applying an oxidizing agent to the vessel walls...

...B) inhibiting **restenosis** of a **blood vessel wall**, comprising locally applying a free radical generating agent to the vessel walls; and...

...C) inhibiting **restenosis** of a **stenosed coronary vessel region**, comprising locally applying hydroxyl ions to the vessel region...

...The processes are useful for preventing **restenosis** of **blood vessels**, especially **coronary arteries**.

...

...the need for the specialized equipment and personnel associated with use of radiation to prevent **restenosis**.

Technology Focus:

... especially less than 10) minutes. The active agent may be applied using a substance delivery **catheter** which has an elongate shaft including a distal region and an **inflatable balloon** disposed near the distal region. The **balloon** includes a perfusion **lumen** such that, when the **balloon** is **inflated**, blood perfuses through the **lumen**. The elongate shaft may include a **lumen** extending to the distal region, with the agent being forced through this **lumen** into the distal region. Alternatively, the active agent is applied to the external surface of the **balloon** prior to inserting the **balloon** into a patient. The oxidizing agent can be delivered either alone or in combination with...

Extension Abstract:

... Test sites in pig **coronary arteries** were injured by expansion of an over-sized **balloon** followed by stent placement. Two or three sites in each of four animals were injured...

...with various concentrations of hydrogen peroxide for various lengths of time. The hydrogen peroxide was **delivered** locally to the stented site using a **drug delivery catheter**.

...

...and a 1% solution was infused for 20 minutes, at a rate of 0.5 cc /minute. Control animals had an average diameter reduction of 36% when examined 30 days post

010742331 **Image available**

WPI Acc No: 1996-239286/199624

XRAM Acc No: C96-076341

XRPX Acc No: N96-200305

Device for infusing agent adjacent to blood vessel wall - has ports in distal segment which can be formed into expanded helical coil to leave high flow rate central lumen

Patent Assignee: MICRO THERAPEUTICS INC (MICR-N)

Inventor: CRAGG A H; EVANS S M; WALLACE G B; CRAGG M D A H

Number of Countries: 019 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9613295	A1	19960509	WO 95US13414	A	19951018	199624 B
CA 2160847	A	19960421	CA 2160847	A	19951018	199634
US 5554114	A	19960910	US 94326609	A	19941020	199642
EP 787018	A1	19970806	EP 95938787	A	19951018	199736
			WO 95US13414	A	19951018	
JP 10509350	W	19980914	WO 95US13414	A	19951018	199847
			JP 96514640	A	19951018	

Priority Applications (No Type Date): US 94326609 A 19941020

Cited Patents: US 5116309

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 9613295	A1	E	31	A61M-025/00	
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Designated States (National): JP

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

US 5554114	A	13	A61M-025/00	
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EP 787018	A1	E	A61M-025/00	Based on patent WO 9613295
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Designated States (Regional): BE DE FR GB IT NL

JP 10509350	W	35	A61M-025/00	Based on patent WO 9613295
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CA 2160847	A		A61M-025/01	
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Abstract (Basic): WO 9613295 A

Device for **infusing** a **drug** or other agent into a peripheral low blood **flow rate** region adjacent to a **blood vessel wall** comprises a tube with infusion ports (18) along and around a distal segment (26) following a proximal straight segment. The distal segment can be formed into an expanded helical coil of not less than 2 turns leaving a central higher **flow rate lumen**. In the coil, the ports face the vessel wall, adjacent coil turns and the central **lumen**. The distal segment pref. has a sheath around a coiled wire and is biased towards expanded state so that it can be contracted by a core wire for advancement and expand when the wire is withdrawn.

USE - E.g. to deliver a lytic agent to a **blood clot**, or an agent to a vessel wall after **angioplasty**.

ADVANTAGE - Permits simpler and less expensive **drug delivery** to a vessel wall or **obstruction** while allowing the blood to flow centrally.

Dwg.1/13

Title Terms: DEVICE; INFUSION; AGENT; ADJACENT; BLOOD; VESSEL; WALL; PORT; DISTAL; SEGMENT; CAN; FORMING; EXPAND; HELICAL; COIL; LEAVE; HIGH; FLOW; RATE; CENTRAL; **LUMEN**

Derwent Class: B07; P34

International Patent Class (Main): A61M-025/00; A61M-025/01

International Patent Class (Additional): A61M-025/09

File Segment: CPI; EngPI

Device for infusing agent adjacent to blood vessel wall...

...ports in distal segment which can be formed into expanded helical coil to leave high flow rate central lumen

...Abstract (Basic): Device for infusing a drug or other agent into a peripheral low blood flow rate region adjacent to a blood vessel wall comprises a tube with infusion ports (18) along and around a

distal segment (26...

...into an expanded helical coil of not less than 2 turns leaving a central higher **flow rate lumen**. In the coil, the ports face the vessel wall, adjacent coil turns and the central **lumen**. The distal segment pref. has a sheath around a coiled wire and is biased towards...

...USE - E.g. to deliver a lytic agent to a **blood clot**, or an agent to a vessel wall after **angioplasty**.

...

...ADVANTAGE - Permits simpler and less expensive **drug delivery** to a vessel wall or **obstruction** while allowing the blood to flow centrally

...Abstract (Equivalent): A method for introducing a **drug** or agent into a desired **infusion** site in a **blood vessel** and for **infusing** a **drug** or agent into the **blood vessel** in the peripheral low blood **flow rate** region thereof comprising the steps of...

...segment and a proximal segment and a proximal and distal end and having an infusion **lumen** formed therein extending along the axis of the elongated tubular body from the proximal end...

...and outwardly from the proximal segment when positioned at a desired infusion site in a **blood vessel**, the expanded helical coil infusion configuration providing a generally centrally disposed higher **flow rate** perfusion **lumen** for perfusing blood centrally therethrough and locating the plurality of infusion ports in the peripheral low blood **flow rate** region of the **blood vessel**, such that at least said first portion of the plurality of infusion ports face outward...

...and said third portion of the plurality of infusion ports face inward toward the perfusion **lumen**;

...

...segment for facilitating advancement of said distal infusion segment to a selected location in a **blood vessel**;

...

...advancing said infusion device with said straightened distal infusion segment through the patient's **vascular** system to located said distal infusion segment at a desired site in a **blood vessel**

...

...introducing an infusion fluid into the **lumen** for infusion through said plurality of infusion ports in the low blood **flow rate** region adjacent to said **blood vessel** wall

...Title Terms: **LUMEN**

?

Set	Items	Description
S1	125105	(VENOUS OR VEIN? OR ARTERY OR ARTERI? OR VASCULAR? OR INTR- ?VASC? OR INTR?VEN? OR BLOOD?())VESSEL? OR VENAL OR CORONAR?)
S2	209186	OCCLUD? OR OCCLUSI? OR OBSTRUCT? OR STENOS? OR STENOT? OR - RESTENOS? OR RESTENOT? OR PLAQUE?
S3	59221	SCLERO? OR THROMB? OR BLOODCLOT? OR BLOOD()CLOT? OR ISCHEM- I? OR ARTER?SCLER? OR PLAQUING
S4	477	CALCIUM()DEPOSIT?
S5	45136	BALLOON? OR PLASTY? OR PLASTIE? ? OR ANGIOPLAST? OR OCCLU?- ()DEVICE? OR INFLAT? OR CARDIOPLAST?
S6	25	ARTERIOPLAST?
S7	506183	DELIVER? OR ADMINIST? OR INJECT? OR INFUS? OR PERFUS?
S8	56785	CATHETER? OR CANNULA? OR CANULA? OR TROCAR? OR LUMEN? OR H- OLLOW?(N)WIRE?
S9	127486	DRUG? OR NARCOTIC? OR OCCLU?(N)TREAT? OR ANTICOAGUL? OR AN- TI()COAGUL? OR THROMB??
S10	23096	RADIONUCLID? OR RADIO()NUCLID? OR RADIOISOTOP? OR RADIO()I- SOTOP? OR RADIOACTIVE()ISOTOP?
S11	77	RADIO()ACTIVE()ISOTOP?
S12	174646	FLOWRATE? OR FLOW()RATE? OR "CC" OR "C.C." OR CUBIC()CENTI- L?
S13	56815	S7(10N) (S9 OR S10 OR S11)
S14	3360	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6) AND S8 AND S12
S15	1997	S13 AND S14
S16	1327567	1(10N) (S2 OR S3 OR 4)
S17	8963	S16(S) (S5 OR S6)
S18	56815	S7(10N) (S9 OR S10 OR S11)
S19	0	S 16 AND S17 AND S18
S20	2135	S16 AND S17 AND S18
S21	1593	S20 AND S8
S22	777	S21 AND S12
S23	1373959	PY<1999
S24	179	S22 AND S23

?

?show files

File 348:EUROPEAN PATENTS 1978-2003/Sep W03

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File 349:PCT FULLTEXT 1979-2002/UB=20030925,UT=20030918

(c) 2003 WIPO/Univentio

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24/5,K/41 (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00464714 **Image available**

PERFUSION BALLOON AND RADIOACTIVE WIRE DELIVERY SYSTEM

BALLONNET DE PERFUSION ET DISPOSITIF D'ADMINISTRATION A FIL RADIOACTIF

Patent Applicant/Assignee:

SCIMED LIFE SYSTEMS INC,

Inventor(s):

HASTINGS Roger N,

URICK Michael J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9855179 A1 19981210

Application: WO 98US10235 19980519 (PCT/WO US9810235)

Priority Application: US 97482 19970603

Designated States: CA JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT
SE

Main International Patent Class: A61N-005/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 10450

English Abstract

This invention is a **catheter** (320) capable of irradiating blood vessel walls to inhibit restenosis after angioplasty. **Catheters** (320) are capable of simultaneous irradiation, angioplasty, and in some devices **drug infusion**. Preferred **catheters** (320) include a helical **perfusion** balloon (336) having strand windings (346) spaced apart when inflated, and defining a perfusion **lumen** (356) within. A tubular sheath (374) over the helical strands (346), and distal shaft region (326) is used in some embodiments and defines an outer wall for the perfusion **lumen** (356). A spiral, inter-strand space (376) is defined between the sheath outer wall, and the blood vessel inner wall providing a confined volume for controlled **delivery** of **drugs** to the vessel wall in conjunction with irradiation. A device having a radiation wire distally closed end tube is provided. A device having a radiation wire open ended tube terminating proximally of the perfusion **lumen** is also provided.

French Abstract

L'invention concerne un **catheter** (320) pour vaisseau sanguin pour inhiber une restenose. Les **catheters** (320) de l'invention peuvent irradier, une angioplastie et, dans de médicaments. Des **catheters** préférés de perfusion (336) muni d'enroulements de ballonnet est gonfle et delimitant une lumière à l'intérieur. Une gaine tubulaire (374) (346) et une partie de manchon distale formes de réalisation et delimite une paroi externe pour la lumière de perfusion (356). Un espace spirale (376) entre les fils est delimité entre la paroi externe de la gaine et la paroi interne du vaisseau sanguin et présente un volume captif pour combiner un apport régulé de médicaments à la paroi vasculaire et une irradiation. L'invention concerne en outre un dispositif comprenant un tube terminal à fil radioactif et fermeture distale; elle concerne enfin un dispositif comprenant un tube extensible à fil radioactif arrivant à proximité de la lumière de perfusion.

most promising REFERENCE OR FULL PCT FILE REQUESTED

Patent and Priority Information (Country, Number, Date):

Patent: ... 19981210

Fulltext Availability:

Detailed Description

Claims

English Abstract

This invention is a **catheter** (320) capable of irradiating blood vessel

walls to inhibit restenosis after angioplasty. **Catheters** (320) are capable of simultaneous irradiation, angioplasty, and in some devices **drug infusion**. Preferred **catheters** (320) include a helical **perfusion** balloon (336) having strand windings (346) spaced apart when inflated, and defining a **perfusion lumen** (356) within. A tubular sheath (374) over the helical strands (346), and distal shaft region (326) is used in some embodiments and defines an outer wall for the **perfusion lumen** (356). A spiral, inter-strand space (376) is defined between the sheath outer wall, and the blood vessel inner wall providing a confined volume for controlled **delivery** of **drugs** to the vessel wall in conjunction with irradiation. A device having a radiation wire distally ...

...provided. A device having a radiation wire open ended tube terminating proximally of the **perfusion lumen** is also provided.

French Abstract

L'invention concerne un **catheter** (320) pouvant irradier les parois du vaisseau sanguin pour inhiber une restenose apres une angioplastie. Les **catheters** (320) de l'invention peuvent a la fois effectuer une irradiation, une angioplastie et, dans certains dispositifs, une infusion de medicaments. Des **catheters** preferes (320) incluent un ballonnet de perfusion (336) muni d'enroulements de fils (346) espaces...

Publication Year: 1998

Detailed Description

... by reference. This application is related to U.S. Patent No. 5,558,642, entitled **DRUG DELIVERY CATHETER**, also incorporated by reference.

Field of the Invention

The present invention relates generally to intraluminal or intravascular **catheters** used to deliver radiation inside a living body. More specifically, the present invention relates to radioactive perfusion balloon **catheters** for therapeutic purposes.

Background of the Invention

Intravascular diseases are commonly treated by relatively non...

...known in the art and typically involve use of a guide wire and a balloon **catheter**, possibly in combination with other intravascular devices. A typical balloon **catheter** has an elongate shaft with a balloon attached to its distal end and a manifold attached to the proximal end. In use, the balloon **catheter** is advanced over the guide wire such that the balloon is positioned adjacent a restriction...
...be in part a healing response to the dilation, including the formation of scar tissue.

Drug infusion near the stenosis has been proposed as a means to inhibit restenosis.

U.S. Patent No. 5,558,642 to Schweich, Jr. et al. describes **drug delivery** devices and methods for **delivering** pharmacological agents to vessel walls in conjunction with angioplasty.

Intravascular radiation, including thermal, light and...

...No. 4,799,479 to Spears suggests that heating a dilated restriction may prevent gradual **restenosis** at the dilation site. In addition, U.S. Patent No. 5,417,653 to Sahota...simultaneously dilating a stenosis and delivering radioactive radiation.

in particular, Verin discloses a balloon dilatation **catheter** having an open-ended **lumen** extending therethrough for the delivery of a radioactive guide wire.

One problem associated with the open-ended **lumen** design is that bodily fluids (e.g., blood) may come into contact with the radioactive...

...5,503,613 to Weinberger et al. proposes the use of a separate closed-ended **lumen** in a balloon **catheter**. The closed-ended lumen may be used to deliver a radioactive guide wire without the...

...ended himen design also has draw backs. For example, the addition of a separate delivery **lumen** tends to increase the overall profile of the **catheter**. An increase in profile is not desirable because it may reduce **flow rate** of fluid injections into the guide **catheter** and it may interfere with navigation in small vessels.

1 5 Another problem with both...

...of restenosis. Dake et al. suggest delivering radiation within the distal portion of a tubular **catheter**. Fischell, in the publication EPO 0 593 136 A1, suggests placing a thin wire having...5,540,659 to Tierstein suggests use of a helical centering balloon, attached to a **catheter** at points about the radiation source to allow perfusion through the balloon, between the balloon...

...radiation to vessel interiors to inhibit restenosis. What remains to be provided is an improved **perfusion catheter** having radiation **delivery** and **drug infusion** capabilities.

Sumniga of the Invention

The present invention includes devices and methods for providing radiation...

...The preferred device includes a balloon assembly disposed at the distal region 0 of a **catheter** shaft, where the **catheter** shaft includes an inflation **lumen**, a radiation wire **lumen**, and a **drug infusion lumen**. In the distal region, the radiation wire **lumen** can be disposed above the shaft, making room for a distal, single-operator-exchange guide wire **lumen**. The spiral, inflatable windings are laced inside shaft through- holes transverse to the shaft longitudinal...

...the strands also provides positions along the shaft in between windings for the placement of **drug infusion** apertures. Preferred devices include a tubular sheath over the helical balloon and shaft distal region, defining a perfusion **lumen** outer wall. The sheath preferably is snugly attached to both the exterior contours of the individual helical balloon strand windings and the **catheter** shaft.

2 0 One sparsely wound device includes a closed end radiation tube extending through...

...device allows for use and re-use of non-sterilized radiation sources with the sterile **catheter**. Another device includes an open ended radiation tube terminating distally near the proximal end of...

...wire or source through the balloon, without having a radiation wire tube within the perfusion **lumen** within the balloon.

The open ended radiation wire tube embodiment provides greater perfusion cross-sectional...

...area. The open ended embodiment can also provide a smaller, uninflated profile.

In devices supporting **drug infusion**, **drug infusion** apertures extend through the **catheter** shaft distal region between balloon strand windings. The **infused drug** exits the apertures into the inter-strand spaces outside the tubular sheath and contacts the inside of the enclosing blood vessel wall. The **drug** can spread around the outside of the **perfusion** sheath 0 through the spiral shaped spaces created by the helical strand windings underneath the tubular sheath material. The confined space allows concentrated **drug delivery** against the vessel wall.

24/5/1 (Item 1 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
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00974215

Methods for treating thrombotic disorders
Methoden zur Behandlung thrombothischer Störungen
Methodes de traitement de problemes thrombotiques

PATENT ASSIGNEE:

ELI LILLY AND COMPANY, (204942), Lilly Corporate Center, Indianapolis,
Indiana 46285, (US), (Applicant designated States: all)

INVENTOR:

Grinnell, Brian William, 3625 East 71st Street, Indianapolis, Indiana
46220, (US)

Jakubowski, Joseph Anthony, 3740 Governors Road, Indianapolis, Indiana
46208, (US)

LEGAL REPRESENTATIVE:

Denholm, Anna Marie et al (78623), Eli Lilly and Company Limited, Lilly
Research Centre, Erl Wood Manor, Windlesham Surrey GU20 6PH, (GB)

PATENT (CC, No, Kind, Date): EP 882453 A2 981209 (Basic)

EP 882453 A3 010404

APPLICATION (CC, No, Date): EP 98304327 980602;

PRIORITY (CC, No, Date): US 48628 970605

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; RO; SI

INTERNATIONAL PATENT CLASS: A61K-038/48; A61K-039/395; A61P-007/02;

A61K-038/48; A61K-31:60; A61K-31:435; A61K-038/48; A61K-31:60;

A61K-31:505; A61K-038/48; A61K-31:60; A61K-31:34; A61K-039/395;

A61K-38:48; A61K-31:60; A61K-038/48; A61K-31:60; A61K-038/48; A61K-31:34;

A61K-039/395; A61K-38:48

ABSTRACT EP 882453 A2

The present invention provides a method of treatment for patients with
a variety of thrombotic disorders including, but not limited to, stroke,
venous thrombosis, myocardial infarction, unstable angina, abrupt closure
following angioplasty or stent placement, and thrombosis as a result of
peripheral vascular surgery. Said treatment is a combination therapy with
human aPC and antiplatelet agents including, but not limited to, aspirin
(ASA), clopidogrel, ReoPro(R) (abciximab), dipyridamole, ticlopidine and
IIb/IIIa receptor antagonists. The synergy will result in the ability to
reduce the dosages of the agents used in the combination therapy.

ABSTRACT WORD COUNT: 92

LEGAL STATUS (Type, Pub Date, Kind, Text):

Change: 010404 A2 International Patent Classification changed:
20010214

Application: 981209 A2 Published application (Alwith Search Report
;A2without Search Report)

Extended: 020102 A2 Extended states: AL; LT; LV; RO; SI

Change: 010718 A2 Legal representative(s) changed 20010528

Search Report: 010404 A3 Separate publication of the search report

Change: 010418 A2 Legal representative(s) changed 20010227

Examination: 011031 A2 Date of dispatch of the first examination
report: 20010917

Examination: 981209 A2 Date of filing of request for examination:
980608

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9850	261
SPEC A	(English)	9850	4071
Total word count - document A			4332
Total word count - document B			0
Total word count - documents A + B			4332

DIALOG(R)File 348:EUROPEAN PATENTS
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00705606

An intravascular drug delivery system

Vorrichtung zur Arzneimittelverabreichung in Blutgefassen

Systeme intravasculaire pour l'administration de medicaments

PATENT ASSIGNEE:

SCHNEIDER (USA) INC., (811409), 5905 Nathan Lane, Plymouth, Minnesota

55442, (US), (applicant designated states:

AT;BE;CH;DE;DK;ES;FR;GB;GR;IE;IT;LI;LU;NL;PT;SE)

INVENTOR:

GOODIN, Richard, L., 940 127th Lane N.E., Blaine, MN 55434, (US)

LEGAL REPRESENTATIVE:

Walters, Frederick James et al (37251), Urquhart-Dykes & Lord 91 Wimpole

Street, London W1M 8AH, (GB)

PATENT (CC, No, Kind, Date): EP 732958 A1 960925 (Basic)

EP 732958 B1 990217

WO 9515782 950615

APPLICATION (CC, No, Date): EP 94928502 941014; WO 94IB316 941014

PRIORITY (CC, No, Date): US 163852 931207

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; NL;
PT; SE

INTERNATIONAL PATENT CLASS: A61M-025/10; A61M-029/02;

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 000524 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217,

Oppn None: 20000202 B1 No opposition filed: 19991118

Lapse: 020626 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217, BE 19990217, CH 19990217, LI
19990217, ES 19990217, GR 19990217, PT
19990517, SE 19990217,

Lapse: 010606 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217, BE 19990217, CH 19990217, LI
19990217, GR 19990217, PT 19990517,

Lapse: 001213 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217, BE 19990217, CH 19990525, LI
19990525, PT 19990517,

Lapse: 000607 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217, BE 19990217, PT 19990517,

Lapse: 001227 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217, BE 19990217, CH 19990217, LI
19990217, PT 19990517,

Lapse: 020605 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19990217, BE 19990217, CH 19990217, LI
19990217, GR 19990217, PT 19990517, SE
19990217,

Application: 950906 A International application (Art. 158(1))

Application: 960925 A1 Published application (A1with Search Report
;A2without Search Report)

Examination: 960925 A1 Date of filing of request for examination:
960528

Examination: 970709 A1 Date of despatch of first examination report:
970523

Change: 980107 A1 Representative (change)

Change: 980624 A1 Title of invention (German) (change)

Change: 980624 A1 Title of invention (English) (change)

Change: 980624 A1 Title of invention (French) (change)

Grant: 990217 B1 Granted patent

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9907	542
CLAIMS B	(German)	9907	545
CLAIMS B	(French)	9907	602
SPEC B	(English)	9907	3962
Total word count - document A			0
Total word count - document B			5651
Total word count - documents A + B			5651

24/5/27 (Item 27 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
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00445545

CONTINUOUS DRUG SOLUTION INJECTOR EQUIPPED WITH BALLOON.
INJEKTOR MIT BALLON ZUR KONTINUIERLICHEN INJEKTION EINER
ARZNEIMITTELLOSUNG.

INJECTEUR CONTINU DE SOLUTION MEDICAMENTEUSE EQUIPE D'UN BALLON.

PATENT ASSIGNEE:

TSUKADA MEDICAL RESEARCH CO., LTD., (1232000), 8-12-504, Kitashinjuku
4-chome, Shinjuku-ku, Tokyo 169, (JP), (applicant designated states:
AT;BE;CH;DE;DK;ES;FR;GB;IT;LI;LU;NL;SE)

INVENTOR:

TSUKADA, Osamu, 318-1, Ohazasumiyoshi, Ueda-shi, Naga no 380, (JP)

LEGAL REPRESENTATIVE:

Spall, Christopher John et al (36171), BARKER, BRETTELL & DUNCAN 138
Hagley Road, Edgbaston Birmingham B16 9PW, (GB)

PATENT (CC, No, Kind, Date): EP 473781 A1 920311 (Basic)
EP 473781 A1 920812
EP 473781 B1 951011
WO 9112835 910905

APPLICATION (CC, No, Date): EP 90903935 900228; WO 90JP266 900228

PRIORITY (CC, No, Date): EP 90903935 900228; WO 90JP266 900228

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; IT; LI; LU; NL; SE

INTERNATIONAL PATENT CLASS: A61M-005/152;

CITED PATENTS (EP A): EP 295504 A; EP 172586 A

CITED PATENTS (WO A): JP 64070069 A; JP 56102252 A

ABSTRACT EP 473781 A1

This invention relates to a continuous drug solution injector equipped with a balloon and used for injecting a drug solution filled in a balloon made of an elastic material into the human body within a predetermined period of time by utilizing the shrinking force of the balloon. A bottomed cylinder (3) is fitted slidably with its bottom facing outward into a tubular body (1) which is formed by connecting a drug solution charge portion (5) having a valve member and a drug solution discharge portion (6) having a drug solution discharge control portion through a flow path change-over valve (4) disposed at an intermediate portion. A plurality of holes (12 or 31) are bored in the tubular body or the cylinder. The peripheral edges of the balloon (2) are fixed air-tight to both the tubular body and the cylinder in such a manner as to encompass the junction between the tubular body and the cylinder as well as the holes. Thus the cylinder can slide relative to the tubular body with the aid of the elasticity of the balloon and the inner pressure of the drug solution when the balloon undergoes expansion and shrinkage, and the balloon can undergo expansion and shrinkage in substantially the same quantity in the direction of the center axis in a longitudinal direction and an axial direction vertical to the former, whereby the drug solution can be injected uniformly without intermission. (see image in original document)

ABSTRACT WORD COUNT: 243

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 020619 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT

19951011, CH 19951011, LI 19951011, DK
19951011, ES 19951011, LU 19960229, SE
19960111,

Lapse: 20000209 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19951011, CH 19951011, LI 19951011, DK
19951011, LU 19960229, SE 19960111,

Lapse: 030212 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19951011, CH 19951011, LI 19951011, DK
19951011, ES 19951011, LU 19960229, NL
19951011, SE 19960111,

Application: 920311 A1 Published application (Alwith Search Report
;A2without Search Report)

Examination: 920429 A1 Date of filing of request for examination:
920227

Search Report: 920812 A1 Drawing up of a supplementary European search
report: 920624

Examination: 940427 A1 Date of despatch of first examination report:
940310

Grant: 951011 B1 Granted patent

Lapse: 960605 B1 Date of lapse of the European patent in a
Contracting State: SE 960111

Lapse: 960710 B1 Date of lapse of the European patent in a
Contracting State: AT 951011, SE 960111

Oppn None: 961002 B1 No opposition filed

Lapse: 970326 B1 Date of lapse of the European patent in a
Contracting State: AT 951011, CH 951011, LI
951011, SE 960111

Lapse: 970326 B1 Date of lapse of the European patent in a
Contracting State: AT 951011, CH 951011, LI
951011, SE 960111

Lapse: 980408 B1 Date of lapse of the European patent in a
Contracting State: AT 951011, CH 951011, LI
951011, DK 951011, SE 960111

LANGUAGE (Publication,Procedural,Application): English; English; Japanese
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	238
SPEC A	(English)	EPABF1	4424
Total word count - document A			4662
Total word count - document B			0
Total word count - documents A + B			4662

24/5/29 (Item 29 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00396868

Catheter and method for locally applying medication to the wall of a
blood vessel or other body lumen .
Katheter und Methode zur lokal angewandten Medikation der Wand eines
Blutgefasses oder eines anderen Korperlumens.
Catheter et methode pour medication appliquee localement sur la paroi d'un
vaisseau sanguin ou d'une autre cavite corporelle.

PATENT ASSIGNEE:

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07974, (US), (applicant designated states: DE;ES;FR;GB;IT;NL)

INVENTOR:

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Barbere, Michael D., 306 Groton Street, Dunstable, Massachusetts 01827,
(US)

King, Spencer L., 95 Lullwater Parkway, Atlanta, Georgia 30307, (US)

LEGAL REPRESENTATIVE:

Woodward, John Calvin et al (37981), Venner Shipley & Co. 20 Little
Britain, London EC1A 7DH, (GB)

PATENT (CC, No, Kind, Date): EP 383429 A2 900822 (Basic)

EP 383429 A3 910327
EP 383429 B1 951108

APPLICATION (CC, No, Date): EP 90300438 900116;
PRIORITY (CC, No, Date): US 304352 890131
DESIGNATED STATES: DE; ES; FR; GB; IT; NL
INTERNATIONAL PATENT CLASS: A61M-025/10; A61M-031/00; A61M-029/02;
CITED PATENTS (EP A): EP 338979 A; EP 338979 A; US 4490421 A; EP 284672 A;
EP 284672 A; EP 205851 A

ABSTRACT EP 383429 A2

A method and **catheter** for use in practising the method are provided by which a highly concentrated medication or chemotherapeutic agent can be applied locally under sufficient pressure to cause the medication or agent to penetrate into the localized tissue. The total volume of medication or agent is quite small, well below levels that might cause an adverse reaction in other parts of the body. The **catheter** includes a thin walled flexible balloon (16) having a plurality of minute holes (29) through which medication may flow at a low **flow rate**. The balloon (16) is inflated with the medication under pressure and the low **flow rate** of the order of a few ccs per minute is controlled by the minute holes (29) in the balloon (16). In practising the method of the invention, the balloon (16) is selected such that its inflated diameter will correspond to or be slightly greater than the diameter of the **lumen** into which it is to be placed so that when the balloon (16) is inflated, it will contact intimately the surface of the **lumen**. Inflation of the balloon (16) with the medication will cause a thin film to spread between the balloon (16) and the **lumen**, the film being maintained under a sufficient pressure to penetrate significantly the surrounding tissue with a high concentration of medication. The quantity of medication that ultimately flows free into the **lumen** is quite small and is insufficient to cause any other damage to the patient.

ABSTRACT WORD COUNT: 249

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 900822 A2 Published application (Alwith Search Report
;A2without Search Report)
Search Report: 910327 A3 Separate publication of the European or
International search report
Change: 910529 A2 Obligatory supplementary classification
(change)
Examination: 911009 A2 Date of filing of request for examination:
910802
Examination: 921216 A2 Date of despatch of first examination report:
921029
Grant: 951108 B1 Granted patent
Oppn None: 961030 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	490
CLAIMS B	(English)	EPAB95	601
CLAIMS B	(German)	EPAB95	614
CLAIMS B	(French)	EPAB95	616
SPEC A	(English)	EPABF1	2861
SPEC B	(English)	EPAB95	2877
Total word count - document A			3351
Total word count - document B			4708
Total word count - documents A + B			8059

24/5/33 (Item 33 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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00312914

Retroperfusion and retroinfusion control apparatus, system and method.
Gerat, System und Verfahren zur Steuerung der Retroperfusion und
Retroinfusion.

Appareil, systeme et procede pour la commande de retroperfusion et retro-infusion.

PATENT ASSIGNEE:

RETROPERFUSION SYSTEMS, INC., (981110), 3178 Pullman Avenue, Costa Mesa
California 92626, (US), (applicant designated states: DE;FR;GB;IT;SE)

INVENTOR:

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Tarczy-Hornoch, Zoltan, 7106 Marlborough Terrace, Berkeley California
94705, (US)

Kardos, Thomas J., 1570 Via Capri, No. 10, Laguna Beach California 92651,
(US)

LEGAL REPRESENTATIVE:

Cross, Rupert Edward Blount et al (42891), BOULT, WADE & TENNANT 27
Furnival Street, London EC4A 1PQ, (GB)

PATENT (CC, No, Kind, Date): EP 297723 A2 890104 (Basic)

EP 297723 A3 890503

EP 297723 B1 930825

APPLICATION (CC, No, Date): EP 88304932 880531;

PRIORITY (CC, No, Date): US 56401 870529; US 120591 871113; US 198441
880525

DESIGNATED STATES: DE; FR; GB; IT; SE

INTERNATIONAL PATENT CLASS: A61M-001/10;

CITED PATENTS (EP A): US 4493697 A; US 4648384 A; FR 2458288 A; DE 3610255
A; US 4459977 A; GB 1444117 A

ABSTRACT EP 297723 A2

Retroperfusion control apparatus (11) for supplying arterial blood of a patient to the venous side of the patient's heart including a pump (81) having an inlet (104) and an outlet (114) and a piston (88) movable through a pump stroke for moving a liquid from the inlet (104) to the outlet (114) of the pump (81). A stepper motor (47) is provided which drives the piston (81). Electronic circuitry is provided for driving the stepper motor (47) and senses the presence of an R wave in a patient to operate the stepper motor (47) in response to the sensed R wave.

ABSTRACT WORD COUNT: 105

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 890104 A2 Published application (Alwith Search Report
;A2without Search Report)

Search Report: 890503 A3 Separate publication of the European or
International search report

Examination: 900321 A2 Date of filing of request for examination:
891103

Examination: 900606 A2 Date of despatch of first examination report:
900424

Grant: 930825 B1 Granted patent

Lapse: 940420 B1 Date of lapse of the European patent in a
Contracting State: SE 930825

Oppn None: 940817 B1 No opposition filed

Lapse: 991020 B1 Date of lapse of European Patent in a
contracting state (Country, date): IT
19930825, SE 19930825,

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	1050
CLAIMS B	(German)	EPBBF1	438
CLAIMS B	(French)	EPBBF1	510
SPEC B	(English)	EPBBF1	14787
Total word count - document A			0
Total word count - document B			16785
Total word count - documents A + B			16785

24/5/36 (Item 36 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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4/5/36 (Item 36 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
(c) 2003 European Patent Office. All rts. reserv.

00292372

Liquid infusion device.

Flussigkeitsinjektionsvorrichtung.

Dispositif d'infusion de liquides.

PATENT ASSIGNEE:

NISSHO CORPORATION, (752510), 9-3, Honjo-nishi, 3-chome Oyodo-ku,
Osaka-shi, (JP), (applicant designated states: BE;DE;FR;GB;IT;NL)

INVENTOR:

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PATENT (CC, No, Kind, Date): EP 295504 A2 881221 (Basic)
EP 295504 A3 890308
EP 295504 B1 910807

APPLICATION (CC, No, Date): EP 88108834 880602;

PRIORITY (CC, No, Date): JP 87152971 870618; JP 87204791 870817; JP
87294809 871120

DESIGNATED STATES: BE; DE; FR; GB; IT; NL

INTERNATIONAL PATENT CLASS: A61M-005/14;

CITED PATENTS (EP A): EP 172586 A; EP 172586 A; US 3961725 A; US 3469578 A;
US 3469578 A; US 4121585 A; GB 1066739 A; GB 1066739 A; US 4140117 A; US
4140117 A; US 4031891 A; US 4031891 A

ABSTRACT EP 295504 A2

A liquid infusion device (I) comprising a bladder assembly (A) and a
flow-regulating portion (C). The bladder assembly (A) comprises a tubular
outer shaft (101), an inner shaft slidably (102) received within the
outer shaft and a bladder (103) covering the outer and inner shafts. The
bladder can inflate in both its radial and axial directions whereby
reducing the residual amounts of liquid drug in the bladder on
dispensation of liquid drug. The flow-regulating portion (C) comprises a
pipe having at least one small hole or a pipe having a very small
diameter, so that the accurate regulation of liquid drug can be
performed.

ABSTRACT WORD COUNT: 108

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 881221 A2 Published application (A1with Search Report
;A2without Search Report)

Search Report: 890308 A3 Separate publication of the European or
International search report

Examination: 890614 A2 Date of filing of request for examination:
890407

Examination: 901128 A2 Date of despatch of first examination report:
901016

Grant: 910807 B1 Granted patent

Oppn None: 920729 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	556
CLAIMS B	(German)	EPBBF1	588
CLAIMS B	(French)	EPBBF1	655
SPEC B	(English)	EPBBF1	6507
Total word count - document A			0
Total word count - document B			8306
Total word count - documents A + B			8306

24/5/40 (Item 4 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT

00465050

MODIFIED LOW MOLECULAR WEIGHT HEPARIN THAT INHIBITS CLOT ASSOCIATED COAGULATION FACTORS

HEPARINE DE FAIBLE POIDS MOLECULAIRE MODIFIEE INHIBANT LES FACTEURS DE COAGULATION ASSOCIES AU CAILLOT

Patent Applicant/Assignee:

HAMILTON CIVIC HOSPITALS RESEARCH DEVELOPMENT INC,

WEITZ Jeffrey,

HIRSH Jack,

Inventor(s):

WEITZ Jeffrey,

HIRSH Jack,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9855515 A1 19981210

Application: WO 98CA548 19980605 (PCT/WO CA9800548)

Priority Application: US 9772098 19970606

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD

MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US

UZ VN YU ZW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE

CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN

ML MR NE SN TD TG

Main International Patent Class: C08B-037/10

International Patent Class: A61K-31:725

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 11949

English Abstract

The present invention provides compositions and methods for the treatment of cardiovascular diseases. More particularly, the present invention relates to modifying thrombus formation by administering an agent which, inter alia, is capable of (1) inactivating fluid-phase **thrombin** and **thrombin** which is bound either to fibrin in a clot or to some other surface by catalyzing antithrombin; and (2) inhibiting thrombin generation by catalyzing factor Xa inactivation by antithrombin III (ATIII). The compositions and methods of the present invention are particularly useful for preventing thrombosis in the circuit of cardiac bypass apparatus and in patients undergoing renal dialysis, and for treating patients suffering from or at risk of suffering from thrombus-related cardiovascular conditions, such as unstable angina, acute myocardial infarction (heart attack), cerebrovascular accidents (stroke), pulmonary embolism, deep vein thrombosis, arterial thrombosis, etc.

French Abstract

L'invention concerne des compositions et des methodes permettant de traiter les maladies cardio-vasculaires. Plus particulierement, elle permet de modifier la formation du thrombus grace a l'administration d'un agent qui, entre autres, est capable de: (1) inactiver la **thrombine** en phase fluide et la **thrombine** liee soit a la fibrine contenue dans un caillot, soit a une autre surface, en catalysant l'antithrombine; et (2) inhiber la production de thrombine en catalysant l'inactivation du facteur Xa par l'antithrombine III (AT III). Les compositions et les methodes de la presente invention sont particulierement utiles pour prevenir les thromboses dans le circuit d'un appareil de circulation extra-corporelle et chez les patients dialyses, ainsi que pour traiter les patients souffrant de ou susceptibles de souffrir de troubles cardio-vasculaires lies a un thrombus, tels qu'angor instable, infarctus du myocarde, accident vasculaire cerebral (attaque), embolie pulmonaire, thrombose des veines profondes, thrombose arterielle, etc.

DIALOG(R)File 349:PCT FULLTEXT
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00464714 **Image available**

PERFUSION BALLOON AND RADIOACTIVE WIRE DELIVERY SYSTEM

BALLONNET DE PERFUSION ET DISPOSITIF D'ADMINISTRATION A FIL RADIOACTIF

Patent Applicant/Assignee:

SCIMED LIFE SYSTEMS INC,

Inventor(s):

HASTINGS Roger N,

URICK Michael J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9855179 A1 19981210

Application: WO 98US10235 19980519 (PCT/WO US9810235)

Priority Application: US 97482 19970603

Designated States: CA JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT
SE

Main International Patent Class: A61N-005/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 10450

English Abstract

This invention is a **catheter** (320) capable of irradiating blood vessel walls to inhibit restenosis after angioplasty. **Catheters** (320) are capable of simultaneous irradiation, angioplasty, and in some devices **drug infusion**. Preferred **catheters** (320) include a helical **perfusion** balloon (336) having strand windings (346) spaced apart when inflated, and defining a perfusion **lumen** (356) within. A tubular sheath (374) over the helical strands (346), and distal shaft region (326) is used in some embodiments and defines an outer wall for the perfusion **lumen** (356). A spiral, inter-strand space (376) is defined between the sheath outer wall, and the blood vessel inner wall providing a confined volume for controlled **delivery** of **drugs** to the vessel wall in conjunction with irradiation. A device having a radiation wire distally closed end tube is provided. A device having a radiation wire open ended tube terminating proximally of the perfusion **lumen** is also provided.

French Abstract

L'invention concerne un **catheter** (320) pouvant irradier les parois du vaisseau sanguin pour inhiber une restenose apres une angioplastie. Les **catheters** (320) de l'invention peuvent a la fois effectuer une irradiation, une angioplastie et, dans certains dispositifs, une infusion de medicaments. Des **catheters** preferes (320) incluent un ballonnet de perfusion (336) muni d'enroulements de fils (346) espaces lorsque le ballonnet est gonfle et delimitant une lumiere de perfusion (356) placee a l'interieur. Une gaine tubulaire (374) recouvrant les fils spirales (346) et une partie de manchon distale (326) est utilisee dans certaines formes de realisation et delimite une paroi externe pour la lumiere de perfusion (356). Un espace spirale (376) entre les fils est delimite entre la paroi externe de la gaine et la paroi interne du vaisseau sanguin et presente un volume captif pour combiner un apport regule de medicaments a la paroi vasculaire et une irradiation. L'invention concerne en outre un dispositif comprenant un tube terminal a fil radioactif et fermeture distale; elle concerne enfin un dispositif comprenant un tube extensible a fil radioactif arrivant a proximite de la lumiere de perfusion.

24/5/42 (Item 6 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT
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00464677

METHODS FOR TREATING THROMBOTIC DISORDERS

PROCEDE DE TRAITEMENT DE TROUBLES THROMBOTIQUES

Patent Applicant/Assignee:

ELI LILLY AND COMPANY,
GRINNELL Brian William,
JAKUBOWSKI Joseph Anthony,

Inventor(s):

GRINNELL Brian William,
JAKUBOWSKI Joseph Anthony,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9855142 A1 19981210

Application: WO 98US11071 19980601 (PCT/WO US9811071)

Priority Application: US 9748628 19970605

Designated States: AL AM AU AZ BA BB BG BR BY CA CN CU CZ EE GE GH GM GW HU
ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LV MD MG MK MN MW MX NO NZ PL
RO RU SD SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW GH GM KE LS MW SD
SZ UG ZW AM AZ BY KG KZ MD RU TJ TM BF BJ CF CG CI CM GA GN ML MR NE SN
TD TG

Main International Patent Class: A61K-038/48

International Patent Class: A01N-37:36

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5110

English Abstract

The present invention provides a method of treatment for patients with a variety of thrombotic disorders including, but not limited to, stroke, venous thrombosis, myocardial infarction, unstable angina, abrupt closure following angioplasty or stent placement, and thrombosis as a result of peripheral vascular surgery. Said treatment is a combination therapy with human aPC and antiplatelet agents including, but not limited to, aspirin (ASA), clopidogrel, ReoPro (abciximab), dipyridamole, ticlopidine and IIb/IIIa receptor antagonists. The synergy will result in the ability to reduce the dosages of the agents used in the combination therapy.

French Abstract

L'invention porte sur un procede de traitement de patients souffrant de differents troubles thrombotiques dont, non limitativement, les attaques, les thromboses veineuses, les infarctus du myocarde, l'angor instable, les obturations soudaines suivant une angioplastie ou la mise en place d'une prothese endovasculaire, ou une thrombose consecutive a une operation sur le systeme vasculaire peripherique. Ledit traitement est une therapie combinee d'aPC et d'antiplaquetaires dont, non limitativement: l'aspirine, le clopidogrel, le ReoPro (abciximab), la ticlopidine et les antagonistes des recepteurs IIb/IIIa. Cette synergie permet de reduire les dosages des differents agents utilises dans la therapie combinee.

24/5/65 (Item 29 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00422518 **Image available**

METHOD OF TREATING A DISEASE PROCESS IN A LUMINAL STRUCTURE

PROCEDE POUR TRAITER UN PROCESSUS PATHOLOGIQUE DANS UNE STRUCTURE LUMINALE

Patent Applicant/Assignee:

THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK,
WEINBERGER Judah Z,

Inventor(s):

WEINBERGER Judah Z,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9812979 A1 19980402

Application: WO 97US17286 19970925 (PCT/WO US9717286)

Priority Application: US 96721696 19960926

Designated States: AU CA JP MX US AT BE CH DE DK ES FI FR GB GR IE IT LU MC
NL PT SE

Main International Patent Class: A61B-019/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 20552

English Abstract

An apparatus and a method of inhibiting a disease process in a luminal structure of a subject comprising introducing within the luminal structure a complex of a radionuclide and a chelating agent in an amount effective to inhibit the disease process.

French Abstract

Cette invention se rapporte a un appareil et a un procede qui servent a inhiber un processus pathologique dans une structure luminale d'un sujet, ce procede consistant a introduire dans la structure luminale un complexe d'un radionuclide et d'un agent de chelation en quantite propre a inhiber le processus pathologique.

24/5/75 (Item 39 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00397987

RADIOACTIVITY LOCAL DELIVERY SYSTEM

SYSTEME DE RADIOTHERAPIE LOCALE

Patent Applicant/Assignee:

BERTRAND Olivier,
MONGRAIN Rosaire,
TANGUAY Jean-Francois,
BILODEAU Luc,

Inventor(s):

BERTRAND Olivier,
MONGRAIN Rosaire,
TANGUAY Jean-Francois,
BILODEAU Luc,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9738730 A2 19971023

Application: WO 97CA262 19970417 (PCT/WO CA9700262)

Priority Application: US 9615788 19960417

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN

MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN YU GH

KE LS MW SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB

GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: A61K-051/12

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 9845

English Abstract

The invention provides a radioactivity local delivery system enabling the use of isotopes having a longer half life and having a lower energy. The invention also provides a radioactivity local delivery system enabling an easier and more efficient control of the dose/rate and total dose of local radiation **delivery**. The present invention utilizes a **radioisotope** coupled to a circulation time reducing agent such as a chelatin agent, the coupled radioisotope being in releasable association with the structure to be inserted in a vessel of a human patient. The coupled radioisotope can be part of the support itself or in releasable association therewith through the use of a biodegradable or non-biodegradable pharmaceutical carrier. Also provided is a method to decrease the growth of actively proliferating cells at a targeted site in a vessel of a human patient as well as compositions therefor.

French Abstract

La presente invention concerne un systeme de radiotherapie locale

permettant d'utiliser des isotopes ayant une demi-vie plus longue et une energie moindre. L'invention concerne egalement un systeme de radiotherapie locale permettant de regler plus facilement et plus efficacement la dose/le taux et la dose totale du rayonnement local. Dans la presente invention, on utilise un radio-isotope couple a un agent reduisant le temps de circulation tel qu'un agent chelateur, le radio-isotope couple etant associe a la structure a inserer dans le vaisseau d'un patient humain de maniere a pouvoir en etre libere. Le radio-isotope couple peut faire partie du support lui-meme ou lui etre associe au moyen d'un excipient pharmaceutique biodegradable ou non biodegradable dont il peut se liberer. On decrit egalement un procede et des compositions permettant de reduire la croissance des cellules proliferatives en un site cible d'un vaisseau d'un patient humain.

24/5/87 (Item 51 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00385267

ANTICOAGULANT AGENTS USEFUL IN TREATMENT OF THROMBOSIS
AGENTS COAGULANTS UTILES DANS LE TRAITEMENT DE LA THROMBOSE

Patent Applicant/Assignee:

SMITHKLINE BEECHAM CORPORATION,
UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE,
BLACKBURN Michael Neal,
CHURCH William Robert,
FEUERSTEIN Giora Zeev,
GROSS Mitchell Stuart,
NICHOLS Andrew John,
PADLAN Eduardo Agustin,
PATEL Arunbhai Haribhai,
SYLVESTER Daniel Robert,

Inventor(s):

BLACKBURN Michael Neal,
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FEUERSTEIN Giora Zeev,
GROSS Mitchell Stuart,
NICHOLS Andrew John,
PADLAN Eduardo Agustin,
PATEL Arunbhai Haribhai,
SYLVESTER Daniel Robert,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9726010 A1 19970724
Application: WO 97US759 19970117 (PCT/WO US9700759)
Priority Application: US 9610108 19960117; US 9629119 19961024

Designated States: AL AM AU BB BG BR CA CN CZ EE GE HU IL IS JP KG KP KR LK
LR LT LV MD MG MK MN MX NO NZ PL RO SG SI SK TR TT UA US UZ VN KE LS MW
SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT
LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: A61K-039/395

International Patent Class: C12N-05:12

Publication Language: English

Fulltext Availability:

Detailed Description
Claims

Fulltext Word Count: 32196

English Abstract

Monoclonal antibodies directed against coagulation factors and their use in inhibiting thrombosis are disclosed.

French Abstract

L'invention se rapporte a des anticorps monoclonaux diriges contre des facteurs de coagulation et a leur utilisation dans l'inhibition de la thrombose.

24/5/90 (Item 54 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT
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00382137

**USE OF RC-9 IN DIAGNOSIS AND TREATMENT OF PROLIFERATIVE ARTERIAL DISEASE
UTILISATION DU GENE RC-9 POUR LE DIAGNOSTIC ET LE TRAITEMENT DES MALADIES
ARTERIELLES PROLIFERATIVES**

Patent Applicant/Assignee:

SMITHKLINE BEECHAM CORPORATION,
OHLSTEIN Eliot Howard,
ARLETH Anthony Joseph,
AUTIERI Michael Victor,

Inventor(s):

OHLSTEIN Eliot Howard,
ARLETH Anthony Joseph,
AUTIERI Michael Victor,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9722880 A1 19970626

Application: WO 96US19671 19961213 (PCT/WO US9619671)

Priority Application: US 958801 19951218

Designated States: AL AM AU BB BG BR CA CN CZ EE GE HU IL IS JP KG KP KR LK

LR LT LV MD MG MK MN MX NO NZ PL RO SG SI SK TR TT UA US UZ VN KE LS MW

SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT

LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: G01N-033/563

International Patent Class: G01N-33:559; G01N-33:537; G01N-33:531;

G01N-33:53; G01N-33:542; C12Q-01:68

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 9912

English Abstract

The present invention provides methods of using the polynucleotide sequences, recombinant RC-9 proteins encoded thereby, and RC-9 antibodies in diagnosis and treatment of atherosclerosis.

French Abstract

On decrit des procedes d'utilisation de sequences polynucleotides, des proteines de RC-9 recombinées codees par ces sequences, et des anticorps de RC-9 servant au diagnostic et au traitement de l'atherosclerose.

24/5/94 (Item 58 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT
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00376356 **Image available**

BALLOON CATHETER FOR DRUG APPLICATION

CATHETER A BALLONNET POUR L'APPLICATION DE MEDICAMENTS

Patent Applicant/Assignee:

C R BARD INC,

Inventor(s):

ENGER Christine D,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9717099 A1 19970515

Application: WO 96US17434 19961029 (PCT/WO US9617434)

Priority Application: US 95553973 19951106

Designated States: JP AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-025/10

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5738

English Abstract

A method, and an apparatus for use in practicing the method, are provided by which a highly concentrated medication or chemotherapeutic agent can be applied locally under sufficient pressure to cause the medication or agent to penetrate into localized tissue or a body lumen . The total volume of medication or agent is quite small, well below levels that might cause an adverse reaction in other parts of the body. The catheter includes a thin wall flexible balloon having two collars and a central region between the collars, when the central regions defines a plurality of regularly spaced minute perforations through which medication may weep at a controlled, low flow rate . The flow rate is controlled by the minute perforations and the diameter of the central region is less than the diameter of the collars. In practicing the method of the invention, the balloon is selected such that the inflated diameter of the collars will correspond to or be slightly greater than the diameter of lumen into which the balloon is placed, and the central region will be slightly less than that lumen diameter, thereby defining a distinct, annular medication reservoir between the balloon and body lumen . The depth of the reservoir reduces the risk of medicine jetting against the vessel lumen if excess pressure is applied. Inflation of the balloon with a medication will cause the medication to weep from the central region of the balloon, consequently filling the reservoir and bathing the lumen walls. After a predetermined time, a sufficient amount of medication will be absorbed by the lumen walls and the balloon will be deflated so that the catheter may be withdrawn from the lumen . The quantity of medication that ultimately flows into the vessel lumen is sufficiently small so as to not cause any other systemic damage to the patient.

French Abstract

L'invention porte sur un procede et l'appareil associe au moyen desquels un medicament fortement concentre ou un agent chimiotherapeutique peuvent etre appliques localement sous une pression suffisamment elevee pour leur permettre de penetrer dans un tissu cible ou un orifice corporel. Le volume total de medicament ou d'agent est tres faible et notablement inferieur aux doses susceptibles de provoquer une reaction adverse dans d'autres parties du corps. Le catheter comporte un ballonnet souple a paroi mince comportant deux colliers et une zone centrale situee entre les colliers et percee d'une serie de perforations minuscules regulierement espaces par lesquels le medicament peut suinter avec un debit donne tres faible. La regulation du debit resulte de la taille des perforations, le diametre de la region centrale etant inferieur a celui des colliers. Le ballonnet est choisi de maniere a ce que le diametre des colliers une fois gonfles soit egal ou legerement superieur a celui de la lumiere ou l'on place le ballonnet, et que celui de la zone centrale lui soit legerement inferieur. On constitue ainsi un reservoir annulaire separe de medicament entre le ballonnet et le corps de la lumiere. L'epaisseur du reservoir reduit le risque de projection du medicament contre la lumiere du vaisseau en cas de pression trop forte. Lorsqu'on gonfle le ballonnet a l'aide d'un medicament, ce dernier suinte de la zone centrale du ballonnet, remplit le reservoir et baigne les parois de la lumiere. Apres un temps donne, les parois de la lumiere ayant absorbe une quantite suffisante de medicament, on degonfle le ballonnet pour pouvoir extraire le catheter de la lumiere. La quantite de medicament passant finalement dans la lumiere du vaisseau est suffisamment faible pour ne causer aucun autre dommage systemique au patient.

24/5/113 (Item 77 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00349632 **Image available**
SELECTIVE AORTIC PERFUSION SYSTEM
SYSTEME DE PERFUSION AORTIQUE SELECTIF
Patent Applicant/Assignee:
NEW YORK UNIVERSITY,
Inventor(s):
PARADIS Norman A,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9632145 A1 19961017

Application: WO 95US4531 19950411 (PCT/WO US9504531)

Priority Application: WO 95US4531 19950411

Designated States: AU CA JP AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-001/10

International Patent Class: A61B-17:12

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 8002

English Abstract

An apparatus for improving cardiopulmonary resuscitation involves use of a **catheter** having both an occlusion balloon and a pumping balloon. The occlusion balloon occludes the aorta such that all pumping action will be restricted to the blood vessels above the balloon occlusion. The pumping balloon is cephalad to the occlusion balloon and is preferably pumped in synchronization with external cardiocirculatory resuscitation. The pumping balloon preferably inflates first at the caudal end and then sequentially to the cephalad end in order to provide unidirectional cephalad pumping. Oxygen-carrying fluid may be infused through the **lumen** into the aorta cephalad of the pumping balloon during use.

French Abstract

Appareil concu pour ameliorer la reanimation cardio-respiratoire, qui implique l'utilisation d'un **catheter** pourvu d'un ballonnet d'occlusion et d'un ballonnet de contre-pulsation. Le ballonnet d'occlusion bouche l'aorte de sorte que la totalite de l'action de pompage soit limitee aux vaisseaux sanguins situes au-dessus de l'occlusion. Le ballonnet de contre-pulsation est place en direction cephalique par rapport au ballonnet d'occlusion et est de preference actionne en synchronisation avec la reanimation cardio-respiratoire externe. Le ballonnet de contre-pulsation se gonfle de preference d'abord au niveau de l'extremite caudale, puis progressivement vers l'extremite cephalique, en vue de produire une contre-pulsation unidirectionnelle en direction cephalique. Le fluide porteur d'oxygene peut etre perfuse par le **lumen** pour etre introduit dans l'aorte du cote cephalique par rapport au ballonnet de contre-pulsation utilise lors de cette reanimation.

24/5/114 (Item 78 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00347551 **Image available**

MULTIPLE HOLE DRUG DELIVERY BALLOON

BALLONNET D'ADMINISTRATION DE MEDICAMENTS A ORIFICES MULTIPLES

Patent Applicant/Assignee:

BOSTON SCIENTIFIC CORPORATION,

Inventor(s):

ROPIAK Susan M,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9630064 A1 19961003

Application: WO 96US4361 19960329 (PCT/WO US9604361)

Priority Application: US 95414650 19950331

Designated States: CA JP AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-005/00

International Patent Class: A61M-25:00; A61M-29:00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5033

English Abstract

An inflatable medical device (10) for delivery of medication to an organ

24/5/114 (Item 78 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00347551 **Image available**

MULTIPLE HOLE DRUG DELIVERY BALLOON
BALLONNET D'ADMINISTRATION DE MEDICAMENTS A ORIFICES MULTIPLES

Patent Applicant/Assignee:

BOSTON SCIENTIFIC CORPORATION,

Inventor(s):

ROPIAK Susan M,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9630064 A1 19961003

Application: WO 96US4361 19960329 (PCT/WO US9604361)

Priority Application: US 95414650 19950331

Designated States: CA JP AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-005/00

International Patent Class: A61M-25:00; A61M-29:00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5033

English Abstract

An inflatable medical device (10) for delivery of medication to an organ in the body having a multi- lumen catheter (12) and a hollow, inflatable channel-like medication deliverable balloon (14) at the distal end of the catheter . A plurality of conduits (32) extend along the balloon between the walls (42, 44) of the balloon for delivery of medications. Each conduit includes an array (40) of closely spaced apertures for allowing medications in the conduits to transfer out of the conduits into a surrounding vessel after the balloon is inflated.

French Abstract

Instrument medical (10) gonflable destine a administrer des medicaments a un organe du corps, pourvu d'un catheter (12) a plusieurs lumieres et d'un ballonnet (14) d'administration de medicaments en forme de canal, creux, gonflable et situe a l'extremite distale du catheter . Une pluralite de conduits (32) s'etendent le long du ballonnet entre les parois (42, 44) de celui-ci afin d'administrer des medicaments. Chaque conduit comporte un ensemble (40) d'ouvertures faiblement espacees les unes des autres afin de permettre aux medicaments se trouvant dans les conduits de se transferer de ces derniers a un recipient les entourant apres le gonflage du ballonnet.

24/5/131 (Item 95 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00308621

PERFUSION SHUNT DEVICE FOR RECEIVING ANGIOPLASTY BALLOON

DISPOSITIF DE DERIVATION DE PERFUSION POUR RECEVOIR UN BALLONNET D'ANGIOPLASTIE

Patent Applicant/Assignee:

LOCALMED INC,

Inventor(s):

KLEIN Enrique J,

BAJOR Jordan,

ALBA Paul,

KAPLAN Aaron V,

GOELD Paul K,

EVARD Philip C,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9526773 A1 19951012

Application: WO 95US4191 19950403 (PCT/WO US9504191)

Priority Application: US 94221613 19940401; US 94305250 19940913; US 95401541 19950310

Designated States: AU CA JP KR NZ AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-025/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 11444

English Abstract

A perfusion shunt device (10) is used in conjunction with balloon catheters to provide blood perfusion across an inflated balloon in a blood vessel. The perfusion shunt device (10) comprises a flexible conduit structure (12) having one or more blood perfusion paths (24) formed from a proximal end to a distal end thereof. The flexible conduit structure (12) is usually attached directly or indirectly to a proximal shaft structure. Discrete anchors or expansible sleeves or cages are provided for locating the conduit structure (12) over the balloon on the catheter. The device may be loaded over a conventional angioplasty balloon catheter outside of the blood vessel being treated, either before or after an angioplasty procedure. In an alternative embodiment, a non-distensible pouch (312) is formed integrally with the flexible conduit structure (12) in order to receive the balloon of a balloon angioplasty catheter. The non-distensible nature of the pouch limits the inflated balloon size.

French Abstract

Dispositif de derivation de perfusion (10) utilise en association avec des sondes a ballonnet pour permettre une perfusion sanguine autour d'un ballonnet gonfle dans un vaisseau sanguin. Ledit dispositif de derivation de perfusion (10) comprend un conduit flexible (12) muni d'un ou de plusieurs canaux de perfusion sanguine (24) allant d'une extremite proximale a une extremite distale du conduit. Ce conduit flexible (12) est generalement fixe directement ou indirectement a un axe proximal. Des elements d'ancrage discrets ou des manchons ou cages expansibles sont prevus pour placer le conduit (12) sur le ballonnet de la sonde. Ce dispositif peut etre place sur une sonde a ballonnet pour angioplastie classique a l'exterieur du vaisseau sanguin en cours de traitement, soit avant soit apres une angioplastie. Dans un autre mode de realisation, une poche non dilatante (312) fait partie integrante du conduit flexible (12) afin de recevoir le ballonnet d'une sonde pour angioplastie a ballonnet. La nature non dilatante de la poche permet de limiter la taille du ballonnet gonfle.

24/5/146 (Item 110 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

(c) 2003 WIPO/Univentio. All rts. reserv.

00273144 **Image available**

FLUID DELIVERY CATHETER

CATHETER D'ADMINISTRATION DE LIQUIDES

Patent Applicant/Assignee:

ADVANCED CARDIOVASCULAR SYSTEMS INC,

Inventor(s):

MACHOLD Timothy R,
ROBINSON Janine C,
MICHAELS Mary Beth,
SIRHAN Motasim M,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9421320 A1 19940929

Application: WO 94US2701 19940314 (PCT/WO US9402701)

Priority Application: US 93569 19930315

Designated States: CA JP AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-029/02

Publication Language: English

Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 6265

English Abstract

A **catheter** and method of using the **catheter** for the delivery of therapeutic or diagnostic liquid within a body **lumen** of a patient. The **catheter** (10) has an outer inflatable member (19) which has a wall with a plurality of apertures (20) which eject therapeutic or diagnostic liquid in a jet-like form deep within the **luminal** tissue adjacent to the outer inflatable member (19). In one embodiment the **catheter** has an inner inflatable member (16) disposed within the outer inflatable member (19) which upon inflation expands the outer tubular member (19) so as to dilate a stenotic region of a body **lumen** such as an artery. The inflatable member may be provided with proximal and distal ends which expand to larger diameters than the central inflatable section so as to seal the larger ends and prevent the loss of fluid.

French Abstract

Catheter et procede d'utilisation dudit **catheter** pour l'administration de liquide therapeutique ou diagnostique dans une lumiere du corps d'un patient. Ledit **catheter** (10) possede un element gonflable externe (19) dote d'une paroi presentant une pluralite d'ouvertures (20) qui ejectent du liquide therapeutique ou diagnostique sous forme de jet profondement au sein du tissu de la lumiere adjacent a l'element gonflable externe (19). Dans un mode de realisation, le **catheter** possede un element gonflable interne (16) place a l'interieur de l'element gonflable externe (19), qui, lors du gonflage, dilate l'element tubulaire externe (19) de maniere a dilater une region stenosee d'une lumiere du corps, telle qu'une artere. L'element gonflable peut etre dote d'extremites proximale et distale qui se dilatent pour atteindre des diametres plus importants que la partie gonflable centrale, de maniere a bloquer hermetiquement les extremities plus larges et a empecher la perte de liquide.

?

28/5/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2003 European Patent Office. All rts. reserv.

00807164

MULTIPLE HOLE DRUG DELIVERY BALLOON
BALLONKATHETER MIT MEHREREN LOCHERN ZUR ARZNEIMITTELABGABE
BALLONNET D'ADMINISTRATION DE MEDICAMENTS A ORIFICES MULTIPLES
PATENT ASSIGNEE:

BOSTON SCIENTIFIC CORPORATION, (1064392), One Boston Scientific Place,
Natick, MA 01760-1537, (US), (Proprietor designated states: all)

INVENTOR:

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LEGAL REPRESENTATIVE:

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PATENT (CC, No, Kind, Date): EP 819011 A1 980121 (Basic)

EP 819011 A1 990804

EP 819011 B1 030312

WO 96030064 961003

APPLICATION (CC, No, Date): EP 96910669 960329; WO 96US4361 960329

PRIORITY (CC, No, Date): US 414650 950331

DESIGNATED STATES: DE; FR; GB; IE

INTERNATIONAL PATENT CLASS: A61M-005/00; A61M-025/00; A61M-029/00

CITED PATENTS (EP B): EP 383429 A; US 4994033 A; US 5254089 A; US 5514092 A

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Examination: 010926 A1 Date of dispatch of the first examination
report: 20010810

Application: 961218 A International application (Art. 158(1))

Grant: 030312 B1 Granted patent

Application: 980121 A1 Published application (A1with Search Report
;A2without Search Report)

Examination: 980121 A1 Date of filing of request for examination:
971027

Search Report: 990804 A1 Drawing up of a supplementary European search
report: 990617

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200311	526
CLAIMS B	(German)	200311	591
CLAIMS B	(French)	200311	586
SPEC B	(English)	200311	3856
Total word count - document A			0
Total word count - document B			5559
Total word count - documents A + B			5559

28/5/4 (Item 4 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2003 European Patent Office. All rts. reserv.

00712573

Coaxial/Double lumen catheter.
Koaxial doppellumiger Katheter.
Catheter a double passage coaxial.
PATENT ASSIGNEE:

LEOCOR, INC., (1088753), 1301 Regent's Park Drive, Houston, Texas 77058,
(US), (applicant designated states: BE;DE;FR;GB;IT;LU;NL)

INVENTOR:

Wijay, Bandula, 1301 Regent's Park Drive, Houston, Texas 77058, (US)

LEGAL REPRESENTATIVE:

Le Vrang, Klaus (44745), Fliederstrasse 1, D-85139 Wettstetten, (DE)

PATENT (CC, No, Kind, Date): EP 674912 A1 951004 (Basic)

APPLICATION (CC, No, Date): EP 95101378 950202;

PRIORITY (CC, No, Date): US 221363 940331
DESIGNATED STATES: BE; DE; FR; GB; IT; LU; NL
INTERNATIONAL PATENT CLASS: A61M-029/02;

ABSTRACT EP 674912 A1

The present invention provides a low-profile **balloon** catheter which is extremely maneuverable and capable of dilating an **occluded artery** with minimal risk of angina. The catheter is highly maneuverable because its distal section has substantially coaxial inner and outer tubes which are in relatively tight mechanical communication at their proximal end and their distal ends are mechanically connected only via the **balloon**. As a result, the inner distal tube is relatively independent of the outer distal tube. The proximal section of the catheter is relatively stiff and preferably has two lumens therethrough. One lumen, which is substantially larger, is used to actively **perfuse** oxygenated blood, **drugs**, or dyes distal to the tip of the **catheter** at **flowrates** up to about 100 cc /min. Preferably, the inner surface of this first perfusion **lumen** has a shape at its inner surface that permits the second, smaller lumen to "nest" adjacent to and substantially within said inner surface of said first perfusion lumen. This "nesting" relationship between the two lumens maximizes the area of the proximal section that can be used for perfusion and insertion of the guidewire and **inflation** fluid through the second lumen. In order to provide a flexible, more maneuverable distal tip for the catheter, the first perfusion lumen is in fluid communication with an inner, substantially coaxial tube in the distal section of the catheter. This inner tube extends through an outer tube that is mechanically connected to the catheter and to the proximal end of the **balloon**. The inner tube extends through the **balloon**, which is mechanically connected to the inner tube at its distal end, and then empties the contents from the first perfusion lumen at the distal end of the catheter. (see image in original document)

ABSTRACT WORD COUNT: 291

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 951004 A1 Published application (A1with Search Report
;A2without Search Report)
Withdrawal: 970108 A1 Date on which the European patent application
was deemed to be withdrawn: 960404

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB95	288
SPEC A	(English)	EPAB95	3163
Total word count - document A			3451
Total word count - document B			0
Total word count - documents A + B			3451

28/5/5 (Item 5 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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00620266

CATHETER WITH ATRAUMATIC DRUG DELIVERY TIP
KATHETER MIT ATRAUMATISCHER SPITZE ZUR VERABREICHUNG VON ARZNEIEN
CATHETER A POINTE DE LIBERATION ATRAUMATIQUE DE MEDICAMENT
PATENT ASSIGNEE:

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LEGAL REPRESENTATIVE:

Price, Nigel John King (62102), J.A. KEMP & CO. 14 South Square Gray's
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PATENT (CC, No, Kind, Date): EP 618819 A1 941012 (Basic)
EP 618819 A1 950426
EP 618819 B1 991201

WO 9407549 940414
APPLICATION (CC, No, Date): EP 93921670 930917; WO 93US8834 930917
PRIORITY (CC, No, Date): US 954669 920930
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; MC;
NL; PT; SE
INTERNATIONAL PATENT CLASS: A61M-025/00
CITED PATENTS (EP B): EP 476796 A; DE 3314755 A; GB 2182567 A; US 4149535 A
; US 4173981 A; US 4391276 A; US 4808158 A; US 4842590 A; US 4848344 A;
US 5158084 A

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 001025 B1 Date of lapse of European Patent in a
contracting state (Country, date): BE
19991201, PT 20000302,
Application: 940720 A International application (Art. 158(1))
Lapse: 020626 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19991201, BE 19991201, CH 19991201, LI
19991201, ES 19991201, PT 20000302, SE
19991201,
Lapse: 001227 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19991201, BE 19991201, CH 19991201, LI
19991201, PT 20000302,
Lapse: 001213 B1 Date of lapse of European Patent in a
contracting state (Country, date): BE
19991201, CH 20000307, LI 20000307, PT
20000302,
Oppn None: 001115 B1 No opposition filed: 20000902
Lapse: 001220 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19991201, BE 19991201, CH 20000307, LI
20000307, PT 20000302,
Lapse: 020605 B1 Date of lapse of European Patent in a
contracting state (Country, date): AT
19991201, BE 19991201, CH 19991201, LI
19991201, PT 20000302, SE 19991201,
Application: 941012 A1 Published application (A1with Search Report
;A2without Search Report)
Examination: 941012 A1 Date of filing of request for examination:
940411
Change: 950315 A1 International patent classification (change)
Search Report: 950426 A1 Drawing up of a supplementary European search
report: 950315
Examination: 970416 A1 Date of despatch of first examination report:
970225
*Assignee: 990707 A1 Applicant (name, address) (change)
Grant: 991201 B1 Granted patent

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9948	792
CLAIMS B	(German)	9948	780
CLAIMS B	(French)	9948	872
SPEC B	(English)	9948	2566
Total word count - document A			0
Total word count - document B			5010
Total word count - documents A + B			5010

28/5/6 (Item 6 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
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00594590

Catheter for dilating stenotic lesions
Katheter zur Dilatation von stenosischen Schaden

Catheter pour dilater des lesions stenotiques

PATENT ASSIGNEE:

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INVENTOR:

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Angelini, Paolo, 1568 Kirby Drive, Houston TX 77099, (US)

LEGAL REPRESENTATIVE:

Winter, Brandl, Furniss, Hubner, Ross, Kaiser, Polte, Kindermann
Partnerschaft (100053), Patent- und Rechtsanwaltskanzlei Patentanwalte,
Rechtsanwalt Alois-Steinecker-Strasse 22, 85354 Freising, (DE)

PATENT (CC, No, Kind, Date): EP 597465 A1 940518 (Basic)

EP 597465 B1 000209

APPLICATION (CC, No, Date): EP 93118227 880920;

PRIORITY (CC, No, Date): US 100363 870923

DESIGNATED STATES: DE; FR; GB

RELATED PARENT NUMBER(S) - PN (AN):

EP 383794 (EP 88909045)

INTERNATIONAL PATENT CLASS: A61M-029/02

CITED PATENTS (EP B): EP 260711 A; WO 87/00442 A; GB 156674 A; GB 2172205 A
; US 3924634 A; US 4692148 A

ABSTRACT EP 597465 A1

A catheter for dilating stenotic lesions has an elongated body (I) with at least one lumen (12) extending therethrough. A tip (T), constructed of materials softer than the elongated body is attached to the distal end of the body. The tip segment has at least one lumen (14) passing therethrough which is in alignment with the lumen (12) in the elongated body. A guide is adapted to pass through the aligned lumens. A **balloon** (D) is connected to the distal segment of the elongated body over its outer periphery, thereby creating a **balloon** cavity (24) therebetween. At least one additional lumen (A) is provided in the elongated body in flow communication with the **balloon** cavity, for selective **inflation** and deflation thereof, with a contrast fluid.

ABSTRACT WORD COUNT: 127

NOTE:

Figure number on first page: NONE

LEGAL STATUS (Type, Pub Date, Kind, Text):

Oppn None: 010124 B1 No opposition filed: 20001110

Grant: 20000209 B1 Granted patent

Application: 940518 A1 Published application (A1with Search Report
;A2without Search Report)

Examination: 940518 A1 Date of filing of request for examination:
931125

Examination: 951102 A1 Date of despatch of first examination report:
950913

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200006	785
CLAIMS B	(German)	200006	793
CLAIMS B	(French)	200006	856
SPEC B	(English)	200006	7229
Total word count - document A			0
Total word count - document B			9663
Total word count - documents A + B			9663

28/5/8 (Item 8 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00585492

SELECTIVE AORTIC PERFUSION SYSTEM

SELEKTIVES AORTAPERFUSIONSYSTEM

SYSTEME DE PERFUSION AORTIQUE SELECTIVE

PATENT ASSIGNEE:

NEW YORK UNIVERSITY, (300275), 550 First Avenue, Room MSB 153, New York,
NY 10016, (US), (applicant designated states:

AT;BE;CH;DE;DK;ES;FR;GB;GR;IE;IT;LI;LU;MC;NL;SE)

INVENTOR:

PARADIS, Norman, A., 48 Remsen Street, Brooklyn, NY 11201, (US)

LEGAL REPRESENTATIVE:

Rau, Manfred, Dr. Dipl.-Ing. et al (38392), Rau, Schneck & Hubner

Patentanwalte Konigstrasse 2, 90402 Nurnberg, (DE)

PATENT (CC, No, Kind, Date): EP 603308 A1 940629 (Basic)

EP 603308 A1 950628

EP 603308 B1 990721

WO 9304728 930318

APPLICATION (CC, No, Date): EP 92920154 920909; WO 92US7605 920909

PRIORITY (CC, No, Date): US 756693 910909

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; MC;
NL; SE

INTERNATIONAL PATENT CLASS: A61M-029/00; A61M-025/00; A61B-017/12;

CITED PATENTS (WO A): US 4759976 A ; US 4554953 A ; US 5066532 A ; US

4759391 A ; US 5098522 A

NOTE:

No A-document published by EPO

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse:	000607 B1	Date of lapse of European Patent in a contracting state (Country, date): DE 19991022,
Application:	940629 A1	Published application (A1with Search Report ;A2without Search Report)
Lapse:	030502 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19990721, LI 19990721, DE 19991022, ES 19990721, GB 19991021, GR 19990721, IE 19990921, MC 20000331, NL 19990721, SE 19990721,
Lapse:	030212 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19990721, LI 19990721, DE 19991022, ES 19990721, GB 19991021, GR 19990721, IE 19990921, MC 20000331, NL 19990721, SE 19990721,
Lapse:	020605 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19990721, LI 19990721, DE 19991022, GB 19991021, GR 19990721, IE 19990921, MC 20000331, SE 19990721,
Lapse:	010321 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19990721, LI 19990721, DE 19991022, GB 19991021, IE 19990921, MC 20000331,
Lapse:	001227 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19990721, LI 19990721, DE 19991022, MC 20000331,
Oppn None:	000712 B1	No opposition filed: 20000426
Lapse:	000614 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, DE 19991022,
Lapse:	001213 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19991026, LI 19991026, DE 19991022,
Lapse:	010228 B1	Date of lapse of European Patent in a contracting state (Country, date): AT 19990721, BE 19990721, CH 19990721, LI 19990721, DE 19991022, GB 19991021, MC 20000331,
Lapse:	010606 B1	Date of lapse of European Patent in a

contracting state (Country, date): AT
 19990721, BE 19990721, CH 19990721, LI
 19990721, DE 19991022, GB 19991021, GR
 19990721, IE 19990921, MC 20000331,
 Lapse: 020619 B1 Date of lapse of European Patent in a
 contracting state (Country, date): AT
 19990721, BE 19990721, CH 19990721, LI
 19990721, DE 19991022, ES 19990721, GB
 19991021, GR 19990721, IE 19990921, MC
 20000331, SE 19990721,
 Lapse: 030423 B1 Date of lapse of European Patent in a
 contracting state (Country, date): AT
 19990721, BE 19990721, CH 19990721, LI
 19990721, DE 19991022, ES 19990721, GB
 19991021, GR 19990721, IE 19990921, MC
 19990930, NL 19990721, SE 19990721,
 Examination: 940629 A1 Date of filing of request for examination:
 940322
 Change: 950517 A1 Obligatory supplementary classification
 (change)
 Search Report: 950628 A1 Drawing up of a supplementary European search
 report: 950510
 Examination: 970521 A1 Date of despatch of first examination report:
 970407
 Grant: 990721 B1 Granted patent
 LANGUAGE (Publication,Procedural,Application): English; English; English
 FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9929	778
CLAIMS B	(German)	9929	782
CLAIMS B	(French)	9929	926
SPEC B	(English)	9929	3890
Total word count - document A			0
Total word count - document B			6376
Total word count - documents A + B			6376

28/5/9 (Item 9 from file: 348)
 DIALOG(R)File 348:EUROPEAN PATENTS
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00542319

Drug delivery catheter
 Arzneimittelabgabekatheter
 Catheter destine a l'application de medicaments

PATENT ASSIGNEE:

SCIMED LIFE SYSTEMS, INC., (952161), 6655 Wedgwood Road, Maple Grove, MN
 55369-7503, (US), (applicant designated states: BE;DE;FR;GB;LU;NL)

INVENTOR:

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Harrison, Kent D., 5651 69th Avenue North, No.305, Brooklyn Park,
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LEGAL REPRESENTATIVE:

Baverstock, Michael George Douglas et al (28131), BOULT WADE TENNANT, 27
 Furnival Street, London EC4A 1PQ, (GB)

PATENT (CC, No, Kind, Date): EP 526102 A1 930203 (Basic)
 EP 526102 B1 980401

APPLICATION (CC, No, Date): EP 92306740 920723;

PRIORITY (CC, No, Date): US 740047 910802

DESIGNATED STATES: BE; DE; FR; GB; LU; NL

INTERNATIONAL PATENT CLASS: A61M-029/02;

CITED PATENTS (EP A): WO 8800071 A; US 4824436 A; WO 8911307 A; EP 399712 A

ABSTRACT EP 526102 A1

A drug delivery catheter with an inflatable blood flow lumen
 includes a flexible tubular shaft (30) and an inflatable balloon

assembly (10,12,14,16) disposed at the distal end of the shaft. The catheter is inserted into a vessel with the **balloon** assembly in an **un-inflated** form and the **balloon** member is positioned at the treatment site and **inflated**. The **balloon** member in an **inflated** form defines a region or pocket (26) between the **balloon** assembly and the vessel wall which contains the drug separate from blood flow. Apertures (40) are provided within the **balloon** assembly to provide the drug to the containment pocket. Blood is allowed to flow through the center (24) of the **inflated balloon** assembly. (see image in original document)

ABSTRACT WORD COUNT: 123

LEGAL STATUS (Type, Pub Date, Kind, Text):

Lapse: 20000216 B1 Date of lapse of European Patent in a contracting state (Country, date): BE 19980401, LU 19980731,
Application: 930203 A1 Published application (A1with Search Report ;A2without Search Report)
Examination: 930929 A1 Date of filing of request for examination: 930802
Examination: 951018 A1 Date of despatch of first examination report: 950901
Grant: 980401 B1 Granted patent
Oppn None: 990324 B1 No opposition filed
Lapse: 990707 B1 Date of lapse of the European patent in a Contracting State: BE 980401

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9814	1166
CLAIMS B	(German)	9814	1054
CLAIMS B	(French)	9814	1211
SPEC B	(English)	9814	8707
Total word count - document A			0
Total word count - document B			12138
Total word count - documents A + B			12138

28/5/10 (Item 10 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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00542081

Catheter with improved fluid infusion

Katheter mit Flüssigkeitsinfusion

Catheter avec perfusion de liquide

PATENT ASSIGNEE:

DOW CORNING ENTERPRISES, (2219800), P.O. Box 994, Midland, Michigan 48686-0994, (US), (applicant designated states: DE;FR;GB;IT)

INVENTOR:

Fine, Michael Jay, 11839 NW 28th Street, Coral Springs, Florida, (US)
Rogers, Enora Susanne, 8120 NW 185th Terrace, Hialeah, Florida, (US)

LEGAL REPRESENTATIVE:

Hall, Marina et al (76001), Elkington and Fife Prospect House, 8 Pembroke Road, Sevenoaks, Kent TN13 1XR, (GB)

PATENT (CC, No, Kind, Date): EP 526042 A1 930203 (Basic)
EP 526042 B1 980513

APPLICATION (CC, No, Date): EP 92306486 920715;

PRIORITY (CC, No, Date): US 734381 910722

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: A61B-017/22;

CITED PATENTS (EP A): EP 315290 A; US 4917085 A; WO 8802243 A

ABSTRACT EP 526042 A1

According to the invention, there is provided an **intravascular** catheter (10) and **thrombectomy** procedure utilizing the catheter. The catheter comprises a flexible jacket (12) with a distal working head having a canalizing tip (24) rotatable at high speeds for removing thrombus from the lumen of a vessel A flexible drive assembly (26) extends through the jacket to rotate the tip and a plurality of infusion

ports (31) are formed adjacent the distal end of the jacket, capable of delivering a fluid contrast media at relatively high volumetric flow rates into the lumen of the vessel to locate the site of the thrombus. The canalizing tip is then rotated at high speed to homogenize and remove the thrombus from the lumen. (see image in original document)

ABSTRACT WORD COUNT: 127

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 930203 A1 Published application (A1with Search Report
;A2without Search Report)
Examination: 930609 A1 Date of filing of request for examination:
930401
Examination: 941026 A1 Date of despatch of first examination report:
940908
Change: 960228 A1 Representative (change)
*Assignee: 960228 A1 Applicant (transfer of rights) (change):
Theratek International, Inc. (1889801) 14740 NW
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*Assignee: 960228 A1 Previous applicant in case of transfer of
rights (change): DOW CORNING WRIGHT CORPORATION
(742640) P.O. Box 100 5677 Airline Road
Arlington Tennessee (US) (applicant designated
states: DE;FR;GB;IT)
Change: 960403 A1 Representative (change)
Change: 970108 A1 Representative (change)
*Assignee: 970108 A1 Applicant (transfer of rights) (change): DOW
CORNING ENTERPRISES (2219800) P.O. Box 994
Midland, Michigan 48686-0994 (US) (applicant
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*Assignee: 970108 A1 Previous applicant in case of transfer of
rights (change): Theratek International, Inc.
(1889801) 14740 NW 60th Avenue Miami Lakes,
Florida 33014 (US) (applicant designated
states: DE;FR;GB;IT)
Grant: 980513 B1 Granted patent
Oppn None: 990506 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9820	353
CLAIMS B	(German)	9820	333
CLAIMS B	(French)	9820	391
SPEC B	(English)	9820	12564
Total word count - document A			0
Total word count - document B			13641
Total word count - documents A + B			13641

28/5/11 (Item 11 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00542077

Controller for intravascular catheter system

Steuerung für intravaskuläres Kathetersystem

Commande pour système de catheter intravasculaire

PATENT ASSIGNEE:

DOW CORNING WRIGHT CORPORATION, (742640), P.O. Box 100 5677 Airline Road,
Arlington Tennessee, (US), (applicant designated states: DE;FR;GB;IT)

INVENTOR:

Sullivan, James Brian, 607 Midland Street, Pittsburgh, Pennsylvania, (US)
Moore, Eric Rex, 11318 Frankstown Road, Pittsburgh, Pennsylvania, (US)

LEGAL REPRESENTATIVE:

Dowden, Marina et al (76001), Elkington and Fife Prospect House, 8
Pembroke Road, Sevenoaks, Kent TN13 1XR, (GB)

PATENT (CC, No, Kind, Date): EP 524764 A1 930127 (Basic)
EP 524764 B1 960103

APPLICATION (CC, No, Date): EP 92306482 920715;
PRIORITY (CC, No, Date): US 733498 910722
DESIGNATED STATES: DE; FR; GB; IT
INTERNATIONAL PATENT CLASS: A61B-017/22;
CITED PATENTS (EP A): EP 338965 A; US 4923462 A; EP 183400 A; EP 347098 A
ABSTRACT EP 524764 A1

An intravascular catheter system has a catheter with a rotating tip and a fluid path to permit fluid to be ejected around the tip for cooling the tip. The system has an electric motor for rotating the catheter tip and a second motor for controlling the fluid flow. A control circuit sets the speed of the two motors and also monitors the speed and other parameters for operational errors. If an error is detected for either motor, the entire system, including both motors, is automatically shut down. The control circuit utilizes two processors, a main processor for system control and speed control of both motors and a slave processor for monitoring the speed of the catheter motor. The main processor provides data regarding desired speed to the catheter motor and to the slave processor and the slave processor provides signals the main processor when it detects a speed error. (see image in original document)

ABSTRACT WORD COUNT: 156

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 930127 A1 Published application (A1with Search Report
;A2without Search Report)
Examination: 930512 A1 Date of filing of request for examination:
930309
Examination: 941109 A1 Date of despatch of first examination report:
940923
Change: 950510 A1 Representative (change)
Grant: 960103 B1 Granted patent
*Assignee: 960228 B1 Proprietor of the patent (transfer of rights):
Theratek International, Inc. (1889801) 14740 NW
60th Avenue Miami Lakes, Florida 33014 (US)
(applicant designated states: DE;FR;GB;IT)
*Assignee: 960228 B1 Previous applicant in case of transfer of
rights (change): DOW CORNING WRIGHT CORPORATION
(742640) P.O. Box 100 5677 Airline Road
Arlington Tennessee (US) (applicant designated
states: DE;FR;GB;IT)

Oppn None: 961227 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPAB96	313
CLAIMS B	(German)	EPAB96	322
CLAIMS B	(French)	EPAB96	350
SPEC B	(English)	EPAB96	12024
Total word count - document A			0
Total word count - document B			13009
Total word count - documents A + B			13009

28/5/12 (Item 12 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00516713

Method and catheter for controlled intravascular drug delivery .

Methode und Katheter zur kontrollierten Intravaskularwirkstoffabgabe.

Methode et catheter pour la distribution intravasculaire controlee de
medicaments.

PATENT ASSIGNEE:

ADVANCED CARDIOVASCULAR SYSTEMS, INC., (456392), 3200 Lakeside Drive,
Santa Clara California 95052, (US), (applicant designated states:
BE;CH;DE;FR;GB;IT;LI;NL)

INVENTOR:

Gifford, Hanson S., 71 Morton Street, Palo Alto, California 94303, (US)

LEGAL REPRESENTATIVE:

Baillie, Iain Cameron et al (27951), c/o Ladas & Parry Altheimer Eck 2,
D-80331 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 511499 A2 921104 (Basic)
EP 511499 A3 930324
APPLICATION (CC, No, Date): EP 92105366 920327;
PRIORITY (CC, No, Date): US 679377 910402
DESIGNATED STATES: BE; CH; DE; FR; GB; IT; LI; NL
INTERNATIONAL PATENT CLASS: A61M-025/00; A61B-005/00;
CITED PATENTS (EP A): EP 372088 A; DE 3400874 C; EP 381062 A; US 4767400 A;
EP 248670 A; WO 9200113 A

ABSTRACT EP 511499 A2

A vascular perfusion catheter (10) includes a catheter body (12) having a macroporous matrix (40) forming at least a portion of its distal end. Blood flow is measured in situ by a Doppler mechanism operably coupled to the catheter body. A solution carrying a desired therapeutic agent may be introduced through the catheter and released through the macroporous matrix until a preselected blood flow is observed. (see image in original document)

ABSTRACT WORD COUNT: 73

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 921104 A2 Published application (A1with Search Report
;A2without Search Report)
Search Report: 930324 A3 Separate publication of the European or
International search report
Examination: 930908 A2 Date of filing of request for examination:
930716
Change: 940831 A2 Representative (change)
Withdrawal: 950329 A2 Date on which the European patent application
was deemed to be withdrawn: 941001

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	433
SPEC A	(English)	EPABF1	5385
Total word count - document A			5818
Total word count - document B			0
Total word count - documents A + B			5818

28/5/13 (Item 13 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00396868

Catheter and method for locally applying medication to the wall of a blood vessel or other body lumen.

Katheter und Methode zur lokal angewandten Medikation der Wand eines Blutgefasses oder eines anderen Korperlumens.

Catheter et methode pour medication appliquee localement sur la paroi d'un vaisseau sanguin ou d'une autre cavite corporelle.

PATENT ASSIGNEE:

C.R. BARD, INC., (247301), 730 Central Avenue, Murray Hill New Jersey
07974, (US), (applicant designated states: DE;ES;FR;GB;IT;NL)

INVENTOR:

Wolinsky, Harvey, 49 East 96 Street, New York, NY 10128, (US)
Barbere, Michael D., 306 Groton Street, Dunstable, Massachusetts 01827,
(US)

King, Spencer L., 95 Lullwater Parkway, Atlanta, Georgia 30307, (US)

LEGAL REPRESENTATIVE:

Woodward, John Calvin et al (37981), Venner Shipley & Co. 20 Little
Britain, London EC1A 7DH, (GB)

PATENT (CC, No, Kind, Date): EP 383429 A2 900822 (Basic)
EP 383429 A3 910327
EP 383429 B1 951108

APPLICATION (CC, No, Date): EP 90300438 900116;

PRIORITY (CC, No, Date): US 304352 890131

DESIGNATED STATES: DE; ES; FR; GB; IT; NL
INTERNATIONAL PATENT CLASS: A61M-025/10; A61M-031/00; A61M-029/02;
CITED PATENTS (EP A): EP 338979 A; EP 338979 A; US 4490421 A; EP 284672 A;
EP 284672 A; EP 205851 A

ABSTRACT EP 383429 A2

A method and catheter for use in practising the method are provided by which a highly concentrated medication or chemotherapeutic agent can be applied locally under sufficient pressure to cause the medication or agent to penetrate into the localized tissue. The total volume of medication or agent is quite small, well below levels that might cause an adverse reaction in other parts of the body. The catheter includes a thin walled flexible **balloon** (16) having a plurality of minute holes (29) through which medication may flow at a low flow rate. The **balloon** (16) is **inflated** with the medication under pressure and the low flow rate of the order of a few ccs per minute is controlled by the minute holes (29) in the **balloon** (16). In practising the method of the invention, the **balloon** (16) is selected such that its **inflated** diameter will correspond to or be slightly greater than the diameter of the lumen into which it is to be placed so that when the **balloon** (16) is **inflated**, it will contact intimately the surface of the lumen. **Inflation** of the **balloon** (16) with the medication will cause a thin film to spread between the **balloon** (16) and the lumen, the film being maintained under a sufficient pressure to penetrate significantly the surrounding tissue with a high concentration of medication. The quantity of medication that ultimately flows free into the lumen is quite small and is insufficient to cause any other damage to the patient.

ABSTRACT WORD COUNT: 249

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 900822 A2 Published application (A1with Search Report
;A2without Search Report)
Search Report: 910327 A3 Separate publication of the European or
International search report
Change: 910529 A2 Obligatory supplementary classification
(change)
Examination: 911009 A2 Date of filing of request for examination:
910802
Examination: 921216 A2 Date of despatch of first examination report:
921029
Grant: 951108 B1 Granted patent
Oppn None: 961030 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	490
CLAIMS B	(English)	EPAB95	601
CLAIMS B	(German)	EPAB95	614
CLAIMS B	(French)	EPAB95	616
SPEC A	(English)	EPABF1	2861
SPEC B	(English)	EPAB95	2877
Total word count - document A			3351
Total word count - document B			4708
Total word count - documents A + B			8059

28/5/15 (Item 15 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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00386626

Catheter for even distribution of therapeutic fluids.

Katheter fur eine prazise Verteilung von therapeutischen Flussigkeiten.

Catheter pour une distribution precise de fluides therapeutiques.

PATENT ASSIGNEE:

ADVANCED CARDIOVASCULAR SYSTEMS, INC., (456392), 3200 Lakeside Drive,
Santa Clara California 95052, (US), (applicant designated states:
CH;DE;FR;GB;IT;LI;NL)

INVENTOR:

Sharkawy, Ahmed, 430 Southwest Parkway Nr. 2112, College Station Texas
77840, (US)

LEGAL REPRESENTATIVE:

Baillie, Iain Cameron et al (27951), c/o Ladas & Parry Altheimer Eck 2,
D-80331 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 381062 A2 900808 (Basic)
EP 381062 A3 910605
EP 381062 B1 940323

APPLICATION (CC, No, Date): EP 90101533 900125;

PRIORITY (CC, No, Date): US 304062 890130

DESIGNATED STATES: CH; DE; FR; GB; IT; LI; NL

INTERNATIONAL PATENT CLASS: A61M-025/00;

CITED PATENTS (EP A): DE 330284 C; US 4168703 A; DE 3314755 A; BE 689333 A;
DE 1196327 C

ABSTRACT EP 381062 A2

A multilumen **vascular** catheter for the **delivery** of therapeutic fluids, e.g., containing **thrombolytic** agents, to a patient's **blood vessel**. The catheter has a plurality of flow passageways (17) in the wall of the outer tubular member (12) in which the discharge openings thereof increase in diametrical dimensions so that a desired, e.g., uniform, flow of treatment fluid is delivered exteriorly of the catheter body. The flow passageways preferably are formed by means of lasers. A first rectangularly shaped passageway is formed in the catheter wall and then a second rectangularly shaped hole is made in the wall, overlapping the first hole to form the final rectangular shape. The catheter is particularly adapted to **deliver** small quantities of **thrombolytic** agents, such as urokinase, streptokinase, and tissue plasminogen activator.

ABSTRACT WORD COUNT: 129

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 900808 A2 Published application (A1with Search Report
;A2without Search Report)
Search Report: 910605 A3 Separate publication of the European or
International search report
Examination: 920108 A2 Date of filing of request for examination:
911114
Examination: 930519 A2 Date of despatch of first examination report:
930406
Grant: 940323 B1 Granted patent
Oppn None: 950315 B1 No opposition filed

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	352
CLAIMS B	(German)	EPBBF1	349
CLAIMS B	(French)	EPBBF1	384
SPEC B	(English)	EPBBF1	1762
Total word count - document A			0
Total word count - document B			2847
Total word count - documents A + B			2847

28/5/19 (Item 19 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00312914

Retroperfusion and retroinfusion control apparatus, system and method.

Gerat, System und Verfahren zur Steuerung der Retroperfusion und Retroinfusion.

Appareil, systeme et procede pour la commande de retroperfusion et retro-infusion.

PATENT ASSIGNEE:

RETROPERFUSION SYSTEMS, INC., (981110), 3178 Pullman Avenue, Costa Mesa
California 92626, (US), (applicant designated states: DE;FR;GB;IT;SE)

INVENTOR:

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Kardos, Thomas J., 1570 Via Capri, No. 10, Laguna Beach California 92651,
(US)

LEGAL REPRESENTATIVE:

Cross, Rupert Edward Blount et al (42891), BOULT, WADE & TENNANT 27
Furnival Street, London EC4A 1PQ, (GB)

PATENT (CC, No, Kind, Date): EP 297723 A2 890104 (Basic)
EP 297723 A3 890503
EP 297723 B1 930825

APPLICATION (CC, No, Date): EP 88304932 880531;

PRIORITY (CC, No, Date): US 56401 870529; US 120591 871113; US 198441
880525

DESIGNATED STATES: DE; FR; GB; IT; SE

INTERNATIONAL PATENT CLASS: A61M-001/10;

CITED PATENTS (EP A): US 4493697 A; US 4648384 A; FR 2458288 A; DE 3610255
A; US 4459977 A; GB 1444117 A

ABSTRACT EP 297723 A2

Retroperfusion control apparatus (11) for supplying arterial blood of a patient to the venous side of the patient's heart including a pump (81) having an inlet (104) and an outlet (114) and a piston (88) movable through a pump stroke for moving a liquid from the inlet (104) to the outlet (114) of the pump (81). A stepper motor (47) is provided which drives the piston (81). Electronic circuitry is provided for driving the stepper motor (47) and senses the presence of an R wave in a patient to operate the stepper motor (47) in response to the sensed R wave.

ABSTRACT WORD COUNT: 105

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 890104 A2 Published application (Alwith Search Report
;A2without Search Report)
Search Report: 890503 A3 Separate publication of the European or
International search report
Examination: 900321 A2 Date of filing of request for examination:
891103
Examination: 900606 A2 Date of despatch of first examination report:
900424
Grant: 930825 B1 Granted patent
Lapse: 940420 B1 Date of lapse of the European patent in a
Contracting State: SE 930825
Oppn None: 940817 B1 No opposition filed
Lapse: 991020 B1 Date of lapse of European Patent in a
contracting state (Country, date): IT
19930825, SE 19930825,

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	1050
CLAIMS B	(German)	EPBBF1	438
CLAIMS B	(French)	EPBBF1	510
SPEC B	(English)	EPBBF1	14787
Total word count - document A			0
Total word count - document B			16785
Total word count - documents A + B			16785

28/5/20 (Item 20 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00308085

Catheter and guidewire exchange system.

Katheter und System zum Auswechseln eines Führungsdrahtes.

Système d'échange de catheter et fil de guidage.

PATENT ASSIGNEE:

C.R. BARD, INC., (247300), 731 Central Avenue, Murray Hill New Jersey
07974, (US), (applicant designated states: BE;CH;DE;ES;FR;GB;IT;LI;NL)

INVENTOR:

Crittenden, James Frederick, 232 Worcester Road, Hollis New Hampshire
03049, (US)

Barbere, Michael David, 306 Groton Street, Dunstable Massachusetts 01827,
(US)

White, Bryan John, 28 Thorndike Road, Lowell Massachusetts 01852, (US)

LEGAL REPRESENTATIVE:

Woodward, John Calvin et al (37981), Venner Shipley & Co. 20 Little
Britain, London EC1A 7DH, (GB)

PATENT (CC, No, Kind, Date): EP 282143 A1 880914 (Basic)
EP 282143 B1 930915

APPLICATION (CC, No, Date): EP 88300026 880105;

PRIORITY (CC, No, Date): US 19644 870227

DESIGNATED STATES: BE; CH; DE; ES; FR; GB; IT; LI; NL

INTERNATIONAL PATENT CLASS: A61M-025/00;

CITED PATENTS (EP A): US 4175564 A; US 3853130 A; US 4573970 A; GB 2127294
A

ABSTRACT EP 282143 A1

A catheter and guidewire exchange system in which the guidewire (14) is contained within a guidewire lumen in the indwelling portion of the catheter (10) and with the guidewire and catheter being separated externally of the patient. The catheter includes a guidewire lumen which is slit longitudinally (28) along the length of the catheter. The guide member (59) is carried by the catheter and serves to spread the slit of the lumen to guide the guidewire into or out of the slit guidewire lumen. The guide member may be advanced along the catheter and guidewire in zipper-like fashion so that the proximal ends of the guidewire and catheter will be separated while the distal portions will be merged.

ABSTRACT WORD COUNT: 122

LEGAL STATUS (Type, Pub Date, Kind, Text):

Application: 880914 A1 Published application (A1with Search Report
;A2without Search Report)
Examination: 881228 A1 Date of filing of request for examination:
881028
Examination: 900725 A1 Date of despatch of first examination report:
900611
Grant: 930915 B1 Granted patent
Lapse: 940629 B1 Date of lapse of the European patent in a
Contracting State: BE 930915
Oppn None: 940907 B1 No opposition filed
Lapse: 950111 B1 Date of lapse of the European patent in a
Contracting State: BE 930915, CH 940131, LI
940131
Lapse: 950111 B1 Date of lapse of the European patent in a
Contracting State: BE 930915, CH 940131, LI
940131

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	1264
CLAIMS B	(German)	EPBBF1	1192
CLAIMS B	(French)	EPBBF1	1450
SPEC B	(English)	EPBBF1	3953
Total word count - document A			0
Total word count - document B			7859
Total word count - documents A + B			7859

28/5/22 (Item 1 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00464714 **Image available**

PERFUSION BALLOON AND RADIOACTIVE WIRE DELIVERY SYSTEM

BALLONNET DE PERFUSION ET DISPOSITIF D'ADMINISTRATION A FIL RADIOACTIF

Patent Applicant/Assignee:

SCIMED LIFE SYSTEMS INC,

Inventor(s):

HASTINGS Roger N,

URICK Michael J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9855179 A1 19981210

Application: WO 98US10235 19980519 (PCT/WO US9810235)

Priority Application: US 97482 19970603

Designated States: CA JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61N-005/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 10450

English Abstract

This invention is a catheter (320) capable of irradiating blood vessel walls to inhibit restenosis after angioplasty. Catheters (320) are capable of simultaneous irradiation, angioplasty, and in some devices drug infusion. Preferred catheters (320) include a helical perfusion balloon (336) having strand windings (346) spaced apart when inflated, and defining a perfusion lumen (356) within. A tubular sheath (374) over the helical strands (346), and distal shaft region (326) is used in some embodiments and defines an outer wall for the perfusion lumen (356). A spiral, inter-strand space (376) is defined between the sheath outer wall, and the blood vessel inner wall providing a confined volume for controlled delivery of drugs to the vessel wall in conjunction with irradiation. A device having a radiation wire distally closed end tube is provided. A device having a radiation wire open ended tube terminating proximally of the perfusion lumen is also provided.

French Abstract

L'invention concerne un catheter (320) pouvant irradier les parois du vaisseau sanguin pour inhiber une restenose apres une angioplastie. Les catheters (320) de l'invention peuvent a la fois effectuer une irradiation, une angioplastie et, dans certains dispositifs, une infusion de medicaments. Des catheters preferes (320) incluent un ballonnet de perfusion (336) muni d'enroulements de fils (346) espaces lorsque le ballonnet est gonfle et delimitant une lumiere de perfusion (356) placee a l'interieur. Une gaine tubulaire (374) recouvrant les fils spirales (346) et une partie de manchon distale (326) est utilisee dans certaines formes de realisation et delimite une paroi externe pour la lumiere de perfusion (356). Un espace spirale (376) entre les fils est delimite entre la paroi externe de la gaine et la paroi interne du vaisseau sanguin et presente un volume captif pour combiner un apport regule de medicaments a la paroi vasculaire et une irradiation. L'invention concerne en outre un dispositif comprenant un tube terminal a fil radioactif et fermeture distale; elle concerne enfin un dispositif comprenant un tube extensible a fil radioactif arrivant a proximite de la lumiere de perfusion.

28/5/23 (Item 2 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00458401

INTRAVENOUS INFUSION SYSTEM

SYSTEME DE PERFUSION INTRAVEINEUSE

Patent Applicant/Assignee:

INNOVATIVE DESIGN ASSOCIATES,

Inventor(s):

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VLOKA Jerry Darius,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9848865 A2 19981105

Application: WO 98US5756 19980325 (PCT/WO US9805756)

Priority Application: US 97823064 19970331

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Main International Patent Class: A61M-005/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5846

English Abstract

An intravenous fluid infusion system (10) that includes a dual-sight drip chamber (20). The infusion system (10) allows for improved, inexpensive convenient administration of IV fluids during anesthesia, and surgery using the principles with which practicing anesthesia providers are most comfortable with.

French Abstract

La presente invention concerne un systeme d'injection intraveineuse de fluide comprenant une chambre de goutte-a-goutte a deux cotes. Ce systeme de perfusion permet l'administration facile, bon marche et amelioree de fluides intraveineux au cours d'une anesthesie et d'une operation, utilisant les principes avec lesquels les anesthesistes sont le plus a l'aise dans leur pratique.

28/5/29 (Item 8 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00413738 **Image available**

SYSTEM AND METHOD OF USE FOR REVASCULARIZING STENOTIC BYPASS GRAFTS AND OTHERS BLOOD VESSELS

SYSTEME ET METHODE POUR REVASCULARISER DES PONTAGES ET AUTRES VAISSEAUX SANGUINS STENOSES

Patent Applicant/Assignee:

KENSEY NASH CORPORATION,

Inventor(s):

NASH John E,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9804199 A1 19980205

Application: WO 97US13137 19970725 (PCT/WO US9713137)

Priority Application: US 96690438 19960726

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES

FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN

MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW

GH KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI

FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: A61B-017/22

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 9836

English Abstract

A system and method for opening a lumen in an occluded blood vessel, e.g., a coronary bypass graft, of a living being. The system comprises an atherectomy catheter having a working head, e.g., a rotary impacting impeller, and a debris extraction sub-system. The atherectomy catheter is located within a guide catheter. The working head is arranged to operate on, e.g., impact, the occlusive material in the occluded vessel to open a lumen therein, whereupon some debris may be produced. The debris extraction sub-system introduces an infusate liquid at a first flow rate adjacent the working head and withdraws that liquid and some blood at a second and higher flow rate, through the guide catheter

to create a differential flow adjacent the working head, whereupon the debris is withdrawn in the infusate liquid and blood for collection outside the being's body. The introduction of the infusate liquid may also be used to establish an unbalanced flow adjacent the working head to enable the atherectomy catheter to be steered hydrodynamically. A guide wire having an **inflatable balloon** on its distal end may be used with the atherectomy catheter to block the flow of debris distally, while enabling distal tissues to be perfused with an oxygenating liquid.

French Abstract

Systeme et methode permettant d'ouvrir une lumiere dans un vaisseau sanguin bouche, par exemple dans un pontage coronaire, chez un etre vivant. Le systeme comprend un catheter d'atherectomie comportant une tete de travail, telle qu'un rotor d'impaction, et un sous-systeme extracteur de debris. Le catheter d'atherectomie est dispose a l'interieur d'un catheter guide. La tete de travail est configuree de facon a travailler par impaction, par exemple, le materiau obstruteur bouchant le vaisseau, de facon a y ouvrir une lumiere, ce qui est susceptible de produire des debris. Le sous-systeme extracteur de debris introduit un solute intraveineux, a un premier debit, a proximite de la tete de travail; et, par le catheter guide, il retire ledit liquide associe a un peu de sang, a un second debit, superieur au premier, de facon a produire un flux differentiel a proximite de la tete de travail, ce qui permet de retirer les debris dans le solute et le sang et de les recueillir a l'exterieur de l'organisme. L'introduction du solute peut egalement etre utilisee pour creer un flux non equilibre a proximite de la tete de travail, de facon a pouvoir commander de maniere hydrodynamique le catheter d'atherectomie. Un guide metallique comportant un ballonnet gonflable a son extremite distale peut etre utilise avec le catheter d'atherectomie pour bloquer le flux de debris au niveau distal, tout en perfusant les tissus distaux avec un liquide oxygenant.

28/5/31 (Item 10 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00396973 **Image available**

MULTICHANNEL CATHETER

CATHETER A PLUSIEURS CANAUX

Patent Applicant/Assignee:

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BERTOLERO Raymond S,
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Inventor(s):

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Patent and Priority Information (Country, Number, Date):

Patent: WO 9737716 A1 19971016

Application: WO 97US6533 19970410 (PCT/WO US9706533)

Priority Application: US 9614922 19960410; US 96766384 19961206

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FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN

MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN YU GH

KE LS MW SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB

GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: A61M-029/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 15229

English Abstract

This invention is a single, multichannel catheter useful for extracorporeal circulation of blood to a patient undergoing

cardiovascular treatments or surgery. The catheter has three independent channels and an expandable **balloon** at one end of the catheter. The first channel (34) is the largest and is of a size that allows for delivery of blood to a patient in an amount sufficient to maintain the patient's metabolism and perfusion throughout the treatment or surgery. A second channel (36), smaller than the first, is integrated into the wall of the first channel, and is suitable for delivering a biologically active fluid (e.g., for cardioplegia) to the heart and/or venting the left heart. A third channel (38), also smaller than the first, is integrated into the wall of the first channel, and suitable for delivering a fluid to the **balloon** for its expansion when positioned in the ascending aorta to occlude the flow of blood to the heart. It is important that the first channel accounts for at least about 70 % of the total channel volume. The catheter provides an improved means of performing cardiovascular surgery on a patient using a cardiopulmonary machine for extracorporeal circulation of blood. The catheter is particularly useful for cardiac surgery. The multichannel catheter is best prepared using an extrusion molding technique.

French Abstract

Cette invention concerne un catheter unique a plusieurs canaux, utilise pour la circulation extracorporelle du sang chez un patient subissant un traitement ou une operation cardio-vasculaires. Le catheter comporte trois canaux independants et un ballonnet gonflable a une extremite. Le premier canal (34) est le plus grand et sa dimension lui permet d'amener le sang dans l'organisme d'un patient en une quantite suffisante pour maintenir le metabolisme du patient et l'irrigation sanguine durant tout le traitement ou toute l'intervention. Un deuxieme canal (36), plus petit que le premier, est integre dans la paroi du premier canal et sert a amener un fluide biologique actif (p. ex. dans le cas d'une cardioplegie) vers le coeur et/ou vider le coeur gauche. Un troisieme canal (38), egalement plus petit que le premier, est integre dans la paroi du premier canal, et sert a amener un fluide dans le ballonnet pour que celui-ci puisse se gonfler lorsqu'il est place dans l'aorte ascendante afin de bloquer l'ecoulement sanguin en direction du coeur. Il est important que le premier canal represente au moins 70 % du volume total des canaux. Le catheter presente constitue un instrument ameliore qui permet d'effectuer une intervention cardio-vasculaire sur un patient au moyen d'une machine cardio-pulmonaire utilisee pour permettre la circulation extracorporelle du sang. Ce catheter est particulierement utile lors d'operations cardiaques. La meilleure facon d'obtenir un catheter a plusieurs canaux est de faire appel a une technique de moulage par extrusion.

28/5/32 (Item 11 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00380702 **Image available**

VASCULAR IRRIGATION SOLUTION AND METHOD FOR INHIBITION OF PAIN, INFLAMMATION, SPASM AND RESTENOSIS

SOLUTION D'IRRIGATION VASCULAIRE ET METHODE D'INHIBITION DE LA DOULEUR, DE L'INFLAMMATION, DU SPASME ET DE LA RESTENOSE

Patent Applicant/Assignee:

OMEROS MEDICAL SYSTEMS INC,
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Inventor(s):

DEMOPULOS Gregory A,
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Patent and Priority Information (Country, Number, Date):

Patent: WO 9721445 A1 19970619

Application: WO 96US10954 19960626 (PCT/WO US9610954)

Priority Application: WO 95US16028 19951212

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GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ

PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN KE LS MW SD SZ UG
AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL
PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: A61K-038/08

International Patent Class: A61K-38:55

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 29611

English Abstract

A method and solution for perioperatively inhibiting a variety of pain, inflammation, spasm and **restenosis** processes resulting from cardiovascular or general **vascular** therapeutic and diagnostic procedures. The solution preferably includes multiple pain and inflammation inhibitory agents and spasm inhibitory agents at dilute concentration in a physiologic carrier, such as saline or lactated Ringer's solution. Specific preferred embodiments of the solution of the present invention for use in cardiovascular and general **vascular** procedures also include anti- **restenosis** agents. The solution is introduced lumenally to continuously irrigate an **arterial** site during an operative/interventional or diagnostic procedure for preemptive inhibition of pain and inflammation, **vascular** and non- **vascular** smooth muscle spasm, and **restenosis** while avoiding undesirable side effects associated with oral, intramuscular, subcutaneous or intravenous application of larger doses of the agents. One preferred solution to inhibit pain, inflammation, vasospasm and restenosis includes a serotonin₂ antagonist, a cyclooxygenase inhibitor, an endothelin antagonist, an ATP-sensitive K⁺ channel antagonist, a Ca²⁺ channel antagonist, a nitric oxide donor, an anti-thrombin agent, a glycoprotein IIb/IIIa receptor blocker, a PKC inhibitor and a protein tyrosine kinase inhibitor.

French Abstract

Methode et solution permettant d'inhiber en peri-operatoire une variete de douleurs, d'inflammations, de spasmes et de processus de restenose dus a des interventions therapeutiques et diagnostiques cardio-vasculaires ou vasculaires generales. La solution comprend de preference de multiples agents antalgiques et anti-inflammatoires, ainsi que des agents antispasmodiques, dilues dans un support physiologique, tel qu'un solute salin ou un solute lactate de Ringer. Les modes de realisation specifiques preferes de ladite solution destinee aux interventions cardio-vasculaires et vasculaires generales comprennent egalement des agents anti-restenose. On introduit la solution dans la lumiere vasculaire de facon a irriguer en continu un site arteriel durant une intervention therapeutique ou diagnostique, afin d'inhiber preventivement la douleur et l'inflammation, les spasmes des muscles lisses vasculaires et non vasculaires et la restenose, tout en evitant les effets secondaires indesirables associes a l'administration orale, intramusculaire, sous-cutanee ou intraveineuse de doses relativement importantes de ces agents. Une solution preferee pour inhiber la douleur, l'inflammation, les spasmes vasculaires et la restenose comprend un antagoniste de la serotonine, un inhibiteur de la cyclo-oxygenase, un antagoniste de l'endotheline, un antagoniste des canaux potassiques dependants de l'ATP, un antagoniste des canaux calciques, un donneur d'oxyde nitrique, un agent antithrombotique, un agent bloquant les recepteurs IIb/IIIa des glycoproteines, un inhibiteur de la proteine-kinase C et un inhibiteur de la proteine tyrosine-kinase.

28/5/33 (Item 12 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00376356 **Image available**

BALLOON CATHETER FOR DRUG APPLICATION

CATHETER A BALLONNET POUR L'APPLICATION DE MEDICAMENTS

Patent Applicant/Assignee:

C R BARD INC,

Inventor(s):

ENGER Christine D,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9717099 A1 19970515

Application: WO 96US17434 19961029 (PCT/WO US9617434)

Priority Application: US 95553973 19951106

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Main International Patent Class: A61M-025/10

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5738

English Abstract

A method, and an apparatus for use in practicing the method, are provided by which a highly concentrated medication or chemotherapeutic agent can be applied locally under sufficient pressure to cause the medication or agent to penetrate into localized tissue or a body lumen. The total volume of medication or agent is quite small, well below levels that might cause an adverse reaction in other parts of the body. The catheter includes a thin wall flexible **balloon** having two collars and a central region between the collars, when the central regions defines a plurality of regularly spaced minute perforations through which medication may weep at a controlled, low flow rate. The flow rate is controlled by the minute perforations and the diameter of the central region is less than the diameter of the collars. In practicing the method of the invention, the **balloon** is selected such that the **inflated** diameter of the collars will correspond to or be slightly greater than the diameter of lumen into which the **balloon** is placed, and the central region will be slightly less than that lumen diameter, thereby defining a distinct, annular medication reservoir between the **balloon** and body lumen. The depth of the reservoir reduces the risk of medicine jetting against the vessel lumen if excess pressure is applied. **Inflation** of the **balloon** with a medication will cause the medication to weep from the central region of the **balloon**, consequently filling the reservoir and bathing the lumen walls. After a predetermined time, a sufficient amount of medication will be absorbed by the lumen walls and the **balloon** will be deflated so that the catheter may be withdrawn from the lumen. The quantity of medication that ultimately flows into the vessel lumen is sufficiently small so as to not cause any other systemic damage to the patient.

French Abstract

L'invention porte sur un procede et l'appareil associe au moyen desquels un medicament fortement concentre ou un agent chimiotherapeutique peuvent etre appliques localement sous une pression suffisamment elevee pour leur permettre de penetrer dans un tissu cible ou un orifice corporel. Le volume total de medicament ou d'agent est tres faible et notablement inferieur aux doses susceptibles de provoquer une reaction adverse dans d'autres parties du corps. Le catheter comporte un ballonnet souple a paroi mince comportant deux colliers et une zone centrale situee entre les colliers et percee d'une serie de perforations minuscules regulierement espaces par lesquels le medicament peut suinter avec un debit donne tres faible. La regulation du debit resulte de la taille des perforations, le diametre de la region centrale etant inferieur a celui des colliers. Le ballonnet est choisi de maniere a ce que le diametre des colliers une fois gonfles soit egal ou legerement superieur a celui de la lumiere ou l'on place le ballonnet, et que celui de la zone centrale lui soit legerement inferieur. On constitue ainsi un reservoir annulaire separe de medicament entre le ballonnet et le corps de la lumiere. L'epaisseur du reservoir reduit le risque de projection du medicament contre la lumiere du vaisseau en cas de pression trop forte. Lorsqu'on gonfle le ballonnet a l'aide d'un medicament, ce dernier suinte de la zone centrale du ballonnet, remplit le reservoir et baigne les parois de la lumiere. Apres un temps donne, les parois de la lumiere ayant absorbe une quantite suffisante de medicament, on degonfle le ballonnet pour

pouvoir extraire le catheter de la lumiere. La quantite de medicament passant finalement dans la lumiere du vaisseau est suffisamment faible pour ne causer aucun autre dommage systemique au patient.

28/5/34 (Item 13 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00357832 **Image available**

INFUSION SLEEVE CATHETER HAVING DISTAL DISTRIBUTION MANIFOLD
SONDE A MANCHON DE PERFUSION POSSEDANT UN COLLECTEUR DE DISTRIBUTION DISTAL

Patent Applicant/Assignee:

LOCALMED INC,

Inventor(s):

KLEIN Enrique J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9640346 A1 19961219

Application: WO 96US7489 19960522 (PCT/WO US9607489)

Priority Application: US 95473800 19950607

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SE

Main International Patent Class: A61M-029/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 4516

English Abstract

An infusion catheter (10) for use in combination with a **balloon** catheter comprises a shaft and a radially expansible infusion sleeve (12) attached to a distal end of the shaft. A manifold structure (14) connects a lumen within the shaft (16) to a plurality of lumens formed over the infusion sleeve (12). A **balloon** entry port (56) is provided at a proximal end of the infusion sleeve (12) to receive the **balloon** (B) of the **balloon** catheter (BC). The infusion catheter (10) and **balloon** catheter (BC) are introduced to a target location within a body lumen, typically a target site within a coronary artery, simultaneously. After use of the **balloon** catheter (BC) to treat the body lumen in a conventional manner, the expansible sleeve of the infusion catheter (10) may be advanced over the **balloon** (B), which is then **inflated**. An infuser is delivered through a delivery lumen in the shaft (16) to a plurality of infusion lumens (26) on the radially expanded sleeve while the **balloon** (B) remains **inflated** with the **infuser** exiting **drug deliveryports** (28) near the distal ends of the **infusion** lumens (26).

French Abstract

Sonde de perfusion (10) utilisable en association avec une sonde a ballonnet, et comportant une tige et un manchon de perfusion (12) expansible dans le sens radial et fixe a une extremite distale de la tige. Une structure formant collecteur (14) relie une lumiere interieure de la tige (16) a plusieurs lumieres formees sur le manchon de perfusion (12). Un orifice (56) d'introduction du ballonnet est prevu a l'extremite proximale du manchon de perfusion (12) pour recevoir le ballonnet (B) de la sonde a ballonnet (BC). On place simultanement la sonde de perfusion (10) et la sonde a ballonnet (BC) au niveau d'un site cible a l'interieur d'une lumiere corporelle, en general a l'interieur d'une artere coronaire. Apres l'utilisation de la sonde a ballonnet (BC) pour un traitement classique de la lumiere corporelle, on peut faire avancer le manchon expansible de la sonde de perfusion (10) par-dessus le ballonnet (B), puis gonfler ce dernier. On fait passer une solution intraveineuse dans une lumiere d'administration menagee dans la tige (16) pour la faire parvenir a plusieurs lumieres de perfusion (26) sur le manchon agrandi radialement, pendant que le ballonnet (B) demeure a l'etat gonfle et que la solution sort des orifices (28) d'administration de medicament situes a proximite des extremities distales des lumieres de perfusion (26).

28/5/36 (Item 15 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00350374 **Image available**

RADIOGRAPHIC CONTRAST MATERIAL INJECTOR
INJECTEUR DE PRODUIT DE CONTRASTE RADIOGRAPHIQUE

Patent Applicant/Assignee:

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Inventor(s):

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LIU Jivan,

BAILIN Steven J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9632887 A1 19961024

Application: WO 96US5423 19960419 (PCT/WO US9605423)

Priority Application: US 95425300 19950420; US 95426148 19950420

Designated States: AU CA JP AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT
SE

Main International Patent Class: A61B-006/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 8957

English Abstract

An angiographic injector system (10) includes a motor driven pump (18) which delivers radiographic contrast material to a **catheter** (30) at a variable **flow rate** which is interactively controlled by a user. Operation of the pump (18) is controlled by the user, through a user actuated remote control (14). The angiographic system (10) also includes a manifold (26) and a valve which selectively connects either a syringe pump (18) or a low pressure system (38) to a catheter (30) which is inserted into a patient. The valve is normally biased to a state which connects the low pressure system (38) to the catheter (30) for pressure monitoring, saline flushing, or aspirating functions. When an injection is to be made, the valve automatically switches so that the low pressure system (38) is disconnected and not exposed to high pressure, while the syringe pump (18) is connected through the manifold (26) to the catheter (30).

French Abstract

La presente invention concerne un systeme (10) d'injection angiographique, comprenant une pompe (18) entrainee par un moteur, qui fournit un produit de contraste radiographique a un catheter (30), avec un debit variable commande de facon interactive par un utilisateur. Le fonctionnement de la pompe (18) est commande par l'utilisateur au moyen d'un dispositif de telecommande (14). Le systeme angiographique (10) comprend aussi une tubulure (26) et une soupape qui relie de facon selective soit une pompe de seringue (18), soit un systeme a basse pression (38) a un catheter (30) qui est introduit dans un patient. La soupape est normalement dans une position ou le systeme a basse pression (38) est relie au catheter (30) aux fins de surveillance de la pression, purge par une solution saline ou aspiration. Quand une injection va etre effectuee, la soupape change de position automatiquement, de telle sorte que le systeme a basse pression (38) est debranche et ne subit pas de pression elevee, tandis que la pompe de la seringue (18) est reliee au catheter (30) par la tubulure (26).

28/5/38 (Item 17 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00347551 **Image available**

MULTIPLE HOLE DRUG DELIVERY BALLOON

BALLONNET D'ADMINISTRATION DE MEDICAMENTS A ORIFICES MULTIPLES

Patent Applicant/Assignee:

BOSTON SCIENTIFIC CORPORATION,

Inventor(s):

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Patent and Priority Information (Country, Number, Date):

Patent: WO 9630064 A1 19961003

Application: WO 96US4361 19960329 (PCT/WO US9604361)

Priority Application: US 95414650 19950331

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Main International Patent Class: A61M-005/00

International Patent Class: A61M-25:00; A61M-29:00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5033

English Abstract

An **inflatable** medical device (10) for delivery of medication to an organ in the body having a multi-lumen catheter (12) and a hollow, **inflatable** channel-like medication deliverable **balloon** (14) at the distal end of the catheter. A plurality of conduits (32) extend along the **balloon** between the walls (42, 44) of the **balloon** for delivery of medications. Each conduit includes an array (40) of closely spaced apertures for allowing medications in the conduits to transfer out of the conduits into a surrounding vessel after the **balloon** is **inflated**.

French Abstract

Instrument medical (10) gonflable destine a administrer des medicaments a un organe du corps, pourvu d'un catheter (12) a plusieurs lumieres et d'un ballonnet (14) d'administration de medicaments en forme de canal, creux, gonflable et situe a l'extremite distale du catheter. Une pluralite de conduits (32) s'etendent le long du ballonnet entre les parois (42, 44) de celui-ci afin d'administrer des medicaments. Chaque conduit comporte un ensemble (40) d'ouvertures faiblement espacees les unes des autres afin de permettre aux medicaments se trouvant dans les conduits de se transferer de ces derniers a un recipient les entourant apres le gonflage du ballonnet.

28/5/39 (Item 18 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00336721

IRRIGATION SOLUTION AND METHOD FOR INHIBITION OF PAIN, INFLAMMATION AND SPASM

SOLUTION D'IRRIGATION ET PROCEDE D'INHIBITION DE LA DOULEUR, DE L'INFLAMMATION ET DES SPASMES

Patent Applicant/Assignee:

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Inventor(s):

DEMOPULOS Gregory A,

PIERCE Pamela Anne,

HERZ Jeffrey M,

Patent and Priority Information (Country, Number, Date):

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Priority Application: US 94353775 19941212

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HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT

RO RU SD SE SG SI SK TJ TM TT UA UG US UZ VN KE LS MW SD SZ UG AT BE CH

DE DK ES FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE

SN TD TG

Main International Patent Class: A61K-038/08

International Patent Class: A61K-38:55; A61K-38:55; A61K-38:08; A61K-31:675
; A61K-31:535; A61K-31:48; A61K-31:445; A61K-31:44; A61K-31:40;
A61K-31:165; A61K-31:135; A61K-38:08; A61K-31:535; A61K-31:495; A61K;
A61K; A61K; A61K; A61K

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 17581

English Abstract

A method and solution for perioperatively inhibiting a variety of pain and inflammation and spasm processes at a wound. The solution includes multiple pain and inflammation inhibitory agents and spasm inhibitory agents at dilute concentration in a physiologic base, such as saline or lactated Ringer's solution. Depending on the application, the pain and inflammation agents included in the solution may include: (1) serotonin receptor antagonists; (2) serotonin receptor agonists; (3) histamine receptor antagonists; (4) bradykinin receptor antagonists; (5) kallikrein inhibitors; (6) tachykinin receptor antagonists, including neurokinin1 and neurokinin2 receptor subtype antagonists; (7) calcitonin gene-related peptide (CGRP) receptor antagonists; (8) interleukin receptor antagonists; (9) inhibitors of enzymes active in the synthetic pathway for arachadonic acid metabolites, including (a) phospholipase inhibitors, including PLA2 isoform and PLC'gamma' isoform inhibitors, (b) cyclooxygenase inhibitors, and (c) lipooxygenase inhibitors; (10) prostanoid receptor antagonists including eicosanoid EP-1 and EP-2 receptor subtype antagonists and thromboxane receptor subtype antagonists; (11) leukotriene receptor antagonists including leukotriene B4 and D4 receptor subtype antagonists; (12) opioid receptor agonists, including mu-opiate, delta-opiate, and kappa-opiate receptor sybtype agonists; (13) purinoceptor agonists and antagonists including P2X receptor antagonists and P2Y receptor agonists; (14) adenosine triphosphate (ATP)-sensitive potassium channel openers; and (15) calcium channel antagonists. Suitable anti-inflammatory/anti-pain agents which also act as anti-spasm agents include serotonin receptor antagonists, tachykinin receptor antagonists, ATP-sensitive potassium channel openers and calcium channel antagonists. Other agents which may be utilized in the solution specifically for their anti-spasm properties including endothelin receptor antagonists and the nitric oxyde donors (enzyme activators). The solution is used to continuously irrigate a wound during an operative/interventional procedure for preemptive inhibition of pain and inflammation, as well as vascular and smooth muscle spasm, while avoiding undesirable side effects associated with oral, intramuscular or intravenous application of larger doses of the agents. The solution is useful for arthroscopic, intravascular and urologic procedures, as well as for application to burns, and intra- and postoperative application to surgical wounds.

French Abstract

Procede et solution d'inhibition perioperatoire d'une variete de types de douleurs, d'inflammations et de spasmes au niveau d'une blessure. La solution comprend de multiples agents d'inhibition de la douleur et de l'inflammation, ainsi que des agents d'inhibition des spasmes en concentration diluee dans une base physiologique, telle qu'une solution saline ou lactee de Ringer. En fonction de l'utilisation, les agents contre la douleur et l'inflammation contenus dans la solution peuvent comprendre: (1) des antagonistes du recepteur de serotonine; (2) des agonistes du recepteur de serotonine; (3) des antagonistes du recepteur d'histamine; (4) des antagonistes du recepteur de bradykinine; (5) des inhibiteurs de kallikreine; (6) des antagonistes du recepteur de tachykinine, y compris des antagonistes du sous-type du recepteur de neurokininel et de neurokinine2; (7) des antagonistes du recepteur du peptide apparente au gene de calcitonine (CGRP); (8) des antagonistes du recepteur d'interleukine; (9) des inhibiteurs d'enzymes actives dans la voie de synthese de metabolites d'acide arachadonique, y compris (a) des inhibiteurs de phospholipase, incluant les inhibiteurs de l'isoforme PLA2

et de l'isoforme PLC'gamma', (b) des inhibiteurs de cyclooxygenase et (c) des inhibiteurs de lipooxygenase; (10) des antagonistes du recepteur de prostanoides, y compris des antagonistes du sous-type du recepteur de EP-1 et de EP-2 eicosanoide et des antagonistes du sous-type du recepteur de thromboxane; (11) des antagonistes du recepteur des leucotrienes, y compris des antagonistes du sous-type de recepteur D4 et B4 des leucotrienes; (12) des agonistes du recepteur d'opioïdes, y compris des agonistes du sous-type du recepteur de mu-opioides, de delta-opioides et de kappa-opioides; (13) des agonistes et antagonistes du purinocepteur, y compris des antagonistes du recepteur de P2X et des agonistes du recepteur P2Y; (14) des ouvreurs de canaux de potassium sensibles au triphosphate d'adenosine (ATP) et (15) des antagonistes de canaux de calcium. Des agents appropriés anti-inflammatoires et antalgiques agissant également en tant qu'agents antispasmodiques comprennent des antagonistes du recepteur de serotonine, des antagonistes du recepteur de tachykinine, des ouvreurs de canaux de potassium sensibles à l'ATP et des antagonistes de canaux de calcium. D'autres agents qu'on peut utiliser dans la solution spécifiquement pour leurs propriétés antispasmodiques comprennent des antagonistes du recepteur d'endotheline et des donneurs d'oxyde nitrique (activateurs d'enzymes). On utilise cette solution afin d'irriguer en continu une blessure pendant une procédure opératoire ou d'intervention afin d'inhiber prioritairement la douleur et l'inflammation, ainsi que les spasmes des muscles lisses et des muscles vasculaires, tout en évitant les effets secondaires indésirables associés à l'administration orale, intramusculaire ou intraveineuse de doses plus importantes de ces agents. Cette solution est utile dans des interventions arthroscopiques, intravasculaires et urologiques, ainsi qu'en application à des brûlures et à des lésions chirurgicales intra- et post-opératoires. +/-/-

28/5/41 (Item 20 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00308621

PERFUSION SHUNT DEVICE FOR RECEIVING ANGIOPLASTY BALLOON
DISPOSITIF DE DERIVATION DE PERFUSION POUR RECEVOIR UN BALLONNET D'
ANGIOPLASTIE

Patent Applicant/Assignee:

LOCALMED INC,

Inventor(s):

KLEIN Enrique J,

BAJOR Jordan,

ALBA Paul,

KAPLAN Aaron V,

GOELD Paul K,

EVARD Philip C,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9526773 A1 **19951012**

Application: WO 95US4191 19950403 (PCT/WO US9504191)

Priority Application: US 94221613 19940401; US 94305250 19940913; US
95401541 19950310

Designated States: AU CA JP KR NZ AT BE CH DE DK ES FR GB GR IE IT LU MC NL
PT SE

Main International Patent Class: A61M-025/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 11444

English Abstract

A perfusion shunt device (10) is used in conjunction with **balloon** catheters to provide blood perfusion across an **inflated balloon** in a blood vessel. The perfusion shunt device (10) comprises a flexible conduit structure (12) having one or more blood perfusion paths (24) formed from a proximal end to a distal end thereof. The flexible conduit

structure (12) is usually attached directly or indirectly to a proximal shaft structure. Discrete anchors or expansible sleeves or cages are provided for locating the conduit structure (12) over the **balloon** on the catheter. The device may be loaded over a conventional **angioplasty balloon** catheter outside of the blood vessel being treated, either before or after an **angioplasty** procedure. In an alternative embodiment, a non-distensible pouch (312) is formed integrally with the flexible conduit structure (12) in order to receive the **balloon** of a **balloon angioplasty** catheter. The non-distensible nature of the pouch limits the **inflated balloon** size.

French Abstract

Dispositif de derivation de perfusion (10) utilise en association avec des sondes a ballonnet pour permettre une perfusion sanguine autour d'un ballonnet gonfle dans un vaisseau sanguin. Ledit dispositif de derivation de perfusion (10) comprend un conduit flexible (12) muni d'un ou de plusieurs canaux de perfusion sanguine (24) allant d'une extremite proximale a une extremite distale du conduit. Ce conduit flexible (12) est generalement fixe directement ou indirectement a un axe proximal. Des elements d'ancrage discrets ou des manchons ou cages expansibles sont prevus pour placer le conduit (12) sur le ballonnet de la sonde. Ce dispositif peut etre place sur une sonde a ballonnet pour **angioplastie** classique a l'exterieur du vaisseau sanguin en cours de traitement, soit avant soit apres une **angioplastie**. Dans un autre mode de realisation, une poche non dilatible (312) fait partie integrante du conduit flexible (12) afin de recevoir le ballonnet d'une sonde pour **angioplastie** a ballonnet. La nature non dilatible de la poche permet de limiter la taille du ballonnet gonfle.

28/5/44 (Item 23 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00283054

LOW PROFILE PERFUSION CATHETER

CATHETER DE PERFUSION PLAT

Patent Applicant/Assignee:

CARDIOVASCULAR DYNAMICS INC,

Inventor(s):

CROCKER Michael,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9501200 A1 19950112

Application: WO 94US7265 19940628 (PCT/WO US9407265)

Priority Application: US 9384820 19930630

Designated States: JP AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Main International Patent Class: A61M-029/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 10987

English Abstract

Disclosed is a low profile perfusion catheter, for use in coronary **angioplasty** applications. Preferably the catheter is provided with an **inflatable** dilatation **balloon** (28), and a perfusion lumen (12) extending therethrough. The diameter of the perfusion lumen is enlargeable from a first (37) reduced diameter to a second enlarged diameter. In one embodiment an axially movable tubular support (50) is movable within the lumen from a proximal insertion position to a distal perfusion position. In another embodiment the support (72) is radially expandable. In a further embodiment a porous **drug delivery balloon** (122) is provided.

French Abstract

Catheter de perfusion plat, destine a des applications relatives a l'**angioplastie** coronaire. Le catheter est de preference pourvu d'un

ballonnet de dilatation gonflable (28) et d'une lumiere de perfusion (12) qui le traverse. Le diametre de la lumiere peut etre elargi pour passer d'un premier diametre reduit (37) a un second diametre elargi. Selon un mode de realisation, un support tubulaire axialement mobile (50) peut etre deplace, dans la lumiere, entre une position d'insertion proximale et une position de perfusion distale. Selon un autre mode de realisation, le support (72) est radialement extensible. Selon un autre mode de realisation, un ballonnet poreux (122), destine a l'apport d'un medicament, est decrit.

28/5/52 (Item 31 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00202923 **Image available**

METHOD AND CATHETER FOR INTRAVASCULAR DRUG DELIVERY

PROCEDE ET CATHETER POUR ADMINISTRATION INTRAVASCULAIRE DE MEDICAMENTS

Patent Applicant/Assignee:

CARDIOVASCULAR THERAPEUTIC TECHNOLOGIES INC,

Inventor(s):

GRAOR Robert A,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9200113 A1 19920109

Application: WO 91US4336 19910618 (PCT/WO US9104336)

Priority Application: US 90311 19900626 .

Designated States: AT BE CA CH DE DK ES FR GB GR IT JP LU NL SE

Main International Patent Class: A61M-005/00

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 5074

English Abstract

A vascular perfusion catheter (10) includes a catheter body (12) having a macroporous matrix (40) forming at least a portion of its distal end (16). A solution carrying a desired therapeutic agent may be introduced through the catheter (10) and released through the macroporous matrix (40) under controlled conditions. By forming a matrix as a tubular element (20), the therapeutic agent may be released uniformly in all radial directions over a preselected length within a blood vessel.

French Abstract

Catheter de perfusion vasculaire (10) comprenant un corps (12) dote d'une matrice macroporeuse (40) formant au moins une partie de son extremite distale (16). Une solution contenant un agent therapeutique desire peut etre introduite dans le catheter (10) et liberee a travers la matrice macroporeuse (40) dans des conditions controlees. Grace a la matrice en forme d'element tubulaire (20), l'agent therapeutique peut etre libere uniformement dans toutes les directions radiales sur une longueur preselectionnee au sein d'un vaisseau sanguin.

?

Set	Items	Description
S1	5872460	(VENOUS OR VEIN? OR ARTERY OR ARTERI? OR VASCULAR? OR INTR- ?VASC? OR INTR?VEN? OR BLOOD?())VESSEL? OR VENAL OR CORONAR?)
S2	1255251	OCCLUD? OR OCCLUSI? OR OBSTRUCT? OR STENOS? OR STENOT? OR - RESTENOS? OR RESTENOT? OR PLAQUE?
S3	1808262	SCLERO? OR THROMB? OR BLOODCLOT? OR BLOOD()CLOT? OR ISCHEM- I? OR ARTER?SCLER? OR PLAQUING
S4	4035	CALCIUM()DEPOSIT?
S5	320828	BALLOON? OR PLASTY? OR PLASTIE? ? OR ANGIOPLAST? OR OCCLU?- ()DEVICE? OR INFLAT? OR CARDIOPLAST?
S6	272	ARTERIOPLAST?
S7	6164227	DELIVER? OR ADMINIST? OR INJECT? OR INFUS? OR PERFUS?
S8	570193	CATHETER? OR CANNULA? OR CANULA? OR TROCAR? OR LUMEN? OR H- OLLOW?(N)WIRE?
S9	8729531	DRUG? OR NARCOTIC? OR OCCLU?(N)TREAT? OR ANTICOAGUL? OR AN- TI()COAGUL? OR THROMBYT?
S10	711989	RADIONUCLID? OR RADIO()NUCLID? OR RADIOISOTOP? OR RADIO()I- SOTOP? OR RADIOACTIVE()ISOTOP?
S11	50	RADIO()ACTIVE()ISOTOP?
S12	268276	FLOWRATE? OR FLOW()RATE? OR "CC" OR "C.C." OR CUBIC()CENTI- L?
S13	1821202	S7(10N) (S9 OR S10 OR S11)
S14	341	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6) AND S8 AND S12
S15	30	S13 AND S14
S16	2029950	S3 OR ARTERI?SCLER? OR ARTER?()SCLER? OR ARTER?SCLER? OR - ARTHER?()SCLER? OR ATHER?SCLER? OR ATHER?()SCLER?
S17	320893	S5 OR (CARDIO? OR ANGIO?) ()PLAST?
S18	8769279	S9 OR THROMBOL?
S19	288139	S12 OR (INFUS? OR PERFUS?) ()RATE?
S20	1826721	S7(10N) (S9 OR S10 OR S11 OR S18)
S21	372	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6 OR S17) AND S8 AND (- S12 OR S19)
S22	50	S20 AND S21
S23	738125	S1(10N) (S2 OR S3 OR S4)
S24	321107	S5 OR S6 OR S17
S25	1826721	S7(10N) (S9 OR S10 OR S11 OR S18)
S26	2976	S8(10N) (S12 OR S19)
S27	4	S23 AND S24 AND S25 AND S26
S28	3	S27 AND PY<1999
S29	191901	DC=D1.496.749?
S30	1826725	S7(10N) (S9 OR S10 OR S11 OR S18 OR S29)
S31	4	S23 AND S24 AND S30 AND S26
S32	8333	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6 OR S17) AND S8 AND (- S9 OR S10 OR S11 OR S18)
S33	288139	(S12 OR S19)
S34	95	S32 AND S33
S35	95	S34 OR S31 OR S27 OR S28
S36	73	S35 AND PY<1999
S37	51	RD (unique items)

?show files

File 2:INSPEC 1969-2003/Sep W3
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36/5,K/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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11768689 BIOSIS NO.: 199900014798

Development of a new multifunctional balloon device for PTCA: The performance of prototype device and drug delivery.

AUTHOR: Itoh T; Noguchi T; Nonogi H; Matsuda T; Sugawara T; Arai T; Kanda K
; Tsutsui N

AUTHOR ADDRESS: Div. Cardiol., Res. Inst., Dep. Bioeng., Natl. Cardiovasc.
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JOURNAL: Japanese Journal of Artificial Organs 27 (3):p641-646 1998

ISSN: 0300-0818

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: Japanese; Non-English

SUMMARY LANGUAGE: Japanese; English

ABSTRACT: We have developed a new **balloon catheter** device with multifunctions: **inflation of coronary stenosis**, **drug delivery**, and perfusion of distal vessel and evaluated in vitro and hi vivo using canine model. This **balloon catheter** has eight perfusion ports at the proximal site of **balloon**, and a **drug delivery port** at the distal site of **balloon**. Extended **balloon** distal tube was used as **drug delivery region**. The **flow - rate** was obtained around 42 cc to 52 cc /min. The simulated **drug** was stained hi the **drug delivery region** under the low pressure in **balloon** inside with continuous infusion (1 cc /min.), whereas the simulated **drug** was wash out without continuous infusion. The distal perfusion % **flow - rate** was obtained 12.2+-5.9% comparing with control in a dog carotid **artery**. A continuous infusion of both FITC-labeled **drug** resulted in its local accumulation on and in a injured vessel wall, respectively. This new device may promise to realize local delivery of therapeutic agents at the **balloon injury site** after mechanical **balloon dilatation** to protect **restenosis**.

DESCRIPTORS:

MAJOR CONCEPTS: Cardiovascular System (Transport and Circulation)

BIOSYSTEMATIC NAMES: Canidae--Carnivora, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: dog (Canidae)

ORGANISMS: PARTS ETC: carotid **artery** --circulatory system

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Animals; Carnivores; Chordates ; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Vertebrates

METHODS & EQUIPMENT: percutaneous transluminal **coronary angioplasty** { PTCA)--analytical method

MISCELLANEOUS TERMS: **coronary stenosis**; **drug delivery**; prototype device

CONCEPT CODES:

14501 Cardiovascular System-General; Methods

22002 Pharmacology-General

BIOSYSTEMATIC CODES:

85765 Canidae

Development of a new multifunctional balloon device for PTCA: The performance of prototype device and drug delivery.
1998

ABSTRACT: We have developed a new **balloon catheter** device with multifunctions: **inflation of coronary stenosis**, **drug delivery**, and perfusion of distal vessel and evaluated in vitro and hi vivo using canine model. This **balloon catheter** has eight perfusion ports at the proximal site of **balloon**, and a **drug delivery port** at the distal site of **balloon**. Extended **balloon** distal tube was used as **drug delivery region**. The **flow - rate** was obtained around 42 cc to 52 cc /min. The simulated **drug** was stained hi the **drug delivery region** under the low pressure in **balloon** inside with continuous infusion (1 cc /min.), whereas the simulated **drug** was wash out without continuous infusion. The distal perfusion % **flow - rate** was obtained 12.2+-5.9% comparing

with control in a dog carotid artery . A continuous infusion of both FITC-labeled drug resulted in its local accumulation on and in a injured vessel wall, respectively. This new device may promise to realize local delivery of therapeutic agents at the balloon injury site after mechanical balloon dilatation to protect restenosis .

DESCRIPTORS:

ORGANISMS: PARTS ETC: carotid artery --

METHODS & EQUIPMENT: percutaneous transluminal coronary angioplasty { PTCA...

MISCELLANEOUS TERMS: coronary stenosis ; ...

... drug delivery

36/5,K/6 (Item 6 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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07263378 BIOSIS NO.: 000090043254

**INTRAARTERIAL UROKINASE INFUSION THERAPY FOR ARTERIAL OCCLUSIVE DISEASE
IN THE PELVIS AND EXTREMITY WITH SPECIAL REFERENCE TO SHORT TERM HIGH
DOSE INFUSION**

AUTHOR: KICHIKAWA K; NISHIMINE K; UCHIDA H; KUBOTA Y; YOSHIOKA T; HONDA N;
HIRAI T; TAMADA T; NISHIMURA Y; ET AL

AUTHOR ADDRESS: DEP. RADIOLOGY, NARA MEDICAL UNIVERSITY, JPN.

JOURNAL: NIPPON ACTA RADIOL 50 (3). 1990. 229-239. 1990

FULL JOURNAL NAME: Nippon Acta Radiologica

CODEN: NHGZA

RECORD TYPE: Abstract

LANGUAGE: JAPANESE

ABSTRACT: Thirty-five complete arterial occlusions of pelvis and extremity in 29 patients were treated with intraarterial urokinase infusion therapy. In 28 limbs, the occlusions were due to arteriosclerotic change and in 7 lesions, the occlusions were due to Burger's disease. The patients with arteriosclerotic change ranged in age from 52 to 84 years with a mean age of 68 years, and the patients with Burger's disease ranged in age from 35 to 47 years with a mean age of 43 years. There were 24 men and 5 women. The estimated duration of the occlusion was from 5 days to 5 years with a mean duration of 11 months. The length of the occluded segments ranged from 1 to 45 cm with a mean length of 13.9 cm. The occlusion was located in the iliac artery in 13 patients, the femoral artery in 11 patients, both the iliac and the femoral artery in 2 patients, the popliteal artery in 5 patients, the femoro-popliteal artery in 1 patient, the brachial artery in 2 patients and the radial artery in 1 patient. The infusion catheter was gently advanced into the proximal portion of the clot over a flexible guide wire, and urokinase was infused at a rate of 5000 .apprx. 10000 IU/min, as a short term high dose infusion (SHI), until antegrade blood flow was reestablished. The catheter was then withdrawn to a point proximal to all of the remaining clot, and the infusion rate was reduced to 10000 .apprx. 20000 IU/h as a continuous low dose infusion (CLI). After thrombolytic recanalization, a percutaneous transluminal angioplasty (PTA) was performed in those case which demonstrated a residual narrowing of the lumen . The initial success rate was 86%. Reocclusions were observed in 5 lesions (17%) and a second recanalization was successful in 2 of 3 patients. The 1-year cumulative patency rate following recanalization was 88.4% and the 2-year patency rate was 78.6%. No significant complications directly related to the procedure were observed. SHI combined with CLI and PTA appears to be an effective and safe therapy for chronic long segmental arterial occlusion .

DESCRIPTORS: HUMAN THROMBOLYTIC - DRUG ANTIATHEROGENIC- DRUG BUERGER'S DISEASE ARTERIOSCLEROSIS

CONCEPT CODES:

11316 Chordate Body Regions-Pelvis (1970-)

11318 Chordate Body Regions-Extremities (1970-)

12512 Pathology, General and Miscellaneous-Therapy (1971-)

14508 Cardiovascular System-Blood Vessel Pathology
22005 Pharmacology-Clinical Pharmacology (1972-)
22008 Pharmacology-Blood and Hematopoietic Agents
22010 Pharmacology-Cardiovascular System
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
14501 Cardiovascular System-General; Methods
22100 Routes of Immunization, Infection and Therapy

BIOSYSTEMATIC CODES:

86215 Hominidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA):

Animals
Chordates
Vertebrates
Mammals
Primates
Humans

**INTRAARTERIAL UROKINASE INFUSION THERAPY FOR ARTERIAL OCCLUSIVE DISEASE
IN THE PELVIS AND EXTREMITY WITH SPECIAL REFERENCE TO SHORT TERM HIGH
DOSE INFUSION
1990**

ABSTRACT: Thirty-five complete **arterial occlusions** of pelvis and extremity in 29 patients were treated with intraarterial urokinase infusion therapy. In 28 limbs, the **occlusions** were due to **arteriosclerotic** change and in 7 lesions, the **occlusions** were due to Burger's disease. The patients with **arteriosclerotic** change ranged in age from 52 to 84 years with a mean age of 68...

...of 43 years. There were 24 men and 5 women. The estimated duration of the **occlusion** was from 5 days to 5 years with a mean duration of 11 months. The length of the **occluded** segments ranged from 1 to 45 cm with a mean length of 13.9 cm. The **occlusion** was located in the iliac **artery** in 13 patients, the femoral **artery** in 11 patients, both the iliac and the femoral **artery** in 2 patients, the popliteal **artery** in 5 patients, the femoro-popliteal **artery** in 1 patient, the brachial **artery** in 2 patients and the radial **artery** in 1 patient. The infusion **catheter** was gently advanced into the proximal portion of the clot over a flexible guide wire...

...as a short term high dose infusion (SHI), until antegrade blood flow was reestablished. The **catheter** was then withdrawn to a point proximal to all of the remaining clot, and the **infusion rate** was reduced to 10000 .apprx. 20000 IU/h as a continuous low dose infusion (CLI). After **thrombolytic** recanalization, a percutaneous transluminal **angioplasty** (PTA) was performed in those case which demonstrated a residual narrowing of the **lumen**. The initial success rate was 86%. Reocclusions were observed in 5 lesions (17%) and a...

...CLI and PTA appears to be an effective and safe therapy for chronic long segmental **arterial occlusion**.

DESCRIPTORS: HUMAN **THROMBOLYTIC - DRUG** ANTIATHEROGENIC- **DRUG** **BUERGER'S DISEASE** **ARTERIOSCLEROSIS**

36/5,K/9 (Item 9 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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05553779 BIOSIS NO.: 000083026919

**SHORT-TERM INTRAARTERIAL INFUSION WITH ULTRAHIGH-DOSE UROKINASE IN
TREATMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE**

AUTHOR: SATO M; TERADA M; MITSUZANE K; SUWA K; YOSHIKAWA A; KISHI K; SHIRAI S; MAEDA M; SHIOYAMA Y; ET AL

AUTHOR ADDRESS: DEP. RADIOL., WAKAYAMA MED. COLL., JPN.

JOURNAL: NIPPON ACTA RADIOL 46 (8). 1986. 1001-1006. 1986

FULL JOURNAL NAME: Nippon Acta Radiologica

CODEN: NHGZA

RECORD TYPE: Abstract
LANGUAGE: JAPANESE

ABSTRACT: Seven patients with peripheral **arterial occlusion** (lengths: 3, 8, 10, 11, 14,17 and 20 cm) underwent short-term intraarterial infusion with ultrahigh-dose urokinase. Urokinase was administered through a 5 French **catheter** embedded into **occlusive** segment of the **artery** at a rate of 10,000 IU/min. The total volume of Urokinase used, per patient, was between 120,000 and 1,210,000 IU. Recanalization of the **occluded** segment was successful in each case. Percutaneous transluminal **angioplasty** with a Gruntzig **balloon catheter** was additionally carried out for four patients to dilate the residual **stenosis**. The treatment lasted minimally 12 and maximally 121 minutes. Treatment time was significantly reduced by short-time intraarterial infusion with high-dose urokinase through the **catheter**, deeply embedded in the clot, which **infusion rate** was more than twice as that of McNamara and Fischer. Our method brought us not only rapid recanalization and higher incidence of total clot lysis, but also minimized adverse reactions and complications, which frequently occurred during long-term indwelling of **catheters** in standard fibrinolytic regimen.

DESCRIPTORS: HUMAN **THROMBOLYTIC - DRUG** **STENOSIS** **PERCUTANEOUS**
TRANSLUMINAL ANGIOPLASTY **RECANALIZATION**

CONCEPT CODES:

12512 Pathology, General and Miscellaneous-Therapy (1971-)
14508 Cardiovascular System-Blood Vessel Pathology
22005 Pharmacology-Clinical Pharmacology (1972-)
22008 Pharmacology-Blood and Hematopoietic Agents
22010 Pharmacology-Cardiovascular System
11105 Anatomy and Histology, General and Comparative-Surgery
18501 Integumentary System-General; Methods
22100 Routes of Immunization, Infection and Therapy

BIOSYSTEMATIC CODES:

86215 Hominidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA):

Animals
Chordates
Vertebrates
Mammals
Primates
Humans

SHORT-TERM INTRAARTERIAL INFUSION WITH ULTRAHIGH-DOSE UROKINASE IN
TREATMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE
1986

ABSTRACT: Seven patients with peripheral **arterial occlusion** (lengths: 3, 8, 10, 11, 14,17 and 20 cm) underwent short-term intraarterial infusion with ultrahigh-dose urokinase. Urokinase was administered through a 5 French **catheter** embedded into **occlusive** segment of the **artery** at a rate of 10,000 IU/min. The total volume of Urokinase used, per patient, was between 120,000 and 1,210,000 IU. Recanalization of the **occluded** segment was successful in each case. Percutaneous transluminal **angioplasty** with a Gruntzig **balloon catheter** was additionally carried out for four patients to dilate the residual **stenosis**. The treatment lasted minimally 12 and maximally 121 minutes. Treatment time was significantly reduced by short-time intraarterial infusion with high-dose urokinase through the **catheter**, deeply embedded in the clot, which **infusion rate** was more than twice as that of McNamara and Fischer. Our method brought us not...

...but also minimized adverse reactions and complications, which frequently occurred during long-term indwelling of **catheters** in standard fibrinolytic regimen.

DESCRIPTORS: HUMAN **THROMBOLYTIC - DRUG** **STENOSIS** **PERCUTANEOUS**
TRANSLUMINAL ANGIOPLASTY **RECANALIZATION**

36/5,K/14 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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06650758 Genuine Article#: ZH211 Number of References: 23

Title: A novel method for efficient drug delivery

Author(s): Markou CP; Lutostansky EM; Ku DN; Hanson SR (REPRINT)

Corporate Source: EMORY UNIV,SCH MED, DEPT MED, DIV HEMATOL ONCOL, 1639
PIERCE DR, ROOM 1129/ATLANTA//GA/30322 (REPRINT); EMORY UNIV,SCH MED,
DEPT MED, DIV HEMATOL ONCOL/ATLANTA//GA/30322; GEORGIA INST
TECHNOL,GEORGE W WOODRUFF SCH MECH ENGN/ATLANTA//GA/30332

Journal: ANNALS OF BIOMEDICAL ENGINEERING, 1998 , V26, N3 (MAY-JUN), P
502-511

ISSN: 0090-6964 **Publication date:** 19980500

Publisher: BLACKWELL SCIENCE INC, 350 MAIN ST, MALDEN, MA 02148

Language: English **Document Type:** ARTICLE

Geographic Location: USA

Subfile: CC LIFE--Current Contents, Life Sciences

Journal Subject Category: ENGINEERING, BIOMEDICAL

Abstract: Local delivery of anti- **thrombotic** and anti- **restenotic** **drugs** is desired to achieve high concentrations of agents which may be rapidly degraded systemically or which exhibit very short half-lives in vivo. In this article, the operating characteristics of a novel local **drug** delivery method are described and its effectiveness demonstrated computationally and experimentally. Computational models used a finite volume method to determine the concentration field. Optical dye density measurements of Evans blue in saline were performed in an in vitro steady flow system. Modeling parameters were kept in the physiologic range. Experimental how visualization studies demonstrated high concentrations of infusate near the vessel wall. Computational studies predicted high, clinically significant **drug** concentrations along the wall downstream of the infusion device. When the radial infusion velocity is large (infusion **flow rate** , $Q(\text{inf}) > 0.5\%$ of the main **flow rate** , Q), the wall concentration of the infused **drug** remains high, e.g., levels are greater than 80% of the infusate concentration 5 cm downstream of the infusion device. At lower **infusion rates** ($Q(\text{inf}) < 0.001Q$), the **drug** concentration at the wall decreases exponentially with axial distance to less than 25% of the infusate concentration 5 cm downstream of the infusion device, although therapeutic **drug** levels are still readily maintained. The near wall **drug** concentration is a function of flow conditions, **infusion rate** , and the **drug** diffusivity. Good agreement was obtained between computational and experimental concentration measurements. Flow simulation and experimental results indicate that the technique can effectively sustain high local **drug** concentrations for inhibition of **thrombosis** and **vascular** lesion formation. (C) 1998 Biomedical Engineering Society.

Descriptors--Author Keywords: local **drug** delivery ; mass transfer ; blood-materials interactions

Identifiers--KeyWord Plus(R): INTIMAL HYPERPLASIA; **THROMBOSIS**; HEPARIN; INFUSION; **ANGIOPLASTY**; **CATHETER**; GRAFTS

Cited References:

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WOLINSKY H, 1990, V15, P475, J AM COLL CARDIOL

Title: A novel method for efficient drug delivery
, 1998

Abstract: Local delivery of anti- **thrombotic** and anti- **restenotic** **drugs** is desired to achieve high concentrations of agents which may be rapidly degraded systemically or...

...short half-lives in vivo. In this article, the operating characteristics of a novel local **drug** delivery method are described and its effectiveness demonstrated computationally and experimentally. Computational models used a...

...demonstrated high concentrations of infusate near the vessel wall. Computational studies predicted high, clinically significant **drug** concentrations along the wall downstream of the infusion device. When the radial infusion velocity is large (infusion **flow rate** , $Q(\text{inf}) > 0.5\%$ of the main **flow rate** , Q), the wall concentration of the infused **drug** remains high, e.g., levels are greater than 80% of the infusate concentration 5 cm downstream of the infusion device. At lower **infusion rates** ($Q(\text{inf}) < 0.001Q$), the **drug** concentration at the wall decreases exponentially with axial distance to less than 25% of the infusate concentration 5 cm downstream of the infusion device, although therapeutic **drug** levels are still readily maintained. The near wall **drug** concentration is a function of flow conditions, **infusion rate** , and the **drug** diffusivity. Good agreement was obtained between computational and experimental concentration measurements. Flow simulation and experimental results indicate that the technique can effectively sustain high local **drug** concentrations for inhibition of **thrombosis** and **vascular** lesion formation. (C)
1998 Biomedical Engineering Society.

...Identifiers--INTIMAL HYPERPLASIA; **THROMBOSIS**; HEPARIN; INFUSION;
ANGIOPLASTY; **CATHETER**; GRAFTS

36/5,K/18 (Item 5 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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03016329 Genuine Article#: MY667 Number of References: 15
Title: LOCAL INTRAMURAL DRUG -DELIVERY USING AN INFUSION BALLOON FOLLOWING ANGIOPLASTY IN NORMAL AND ATHEROSCLEROTIC VESSELS
Author(s): RASHEED Q; CACCHIONE JG; BERRY J; RICHARDS F; BRYANT L; STRONY J ; ENGER C; HODGSON JM
Corporate Source: UNIV HOSP CLEVELAND, DIV CARDIOL, 2074 ABINGTON/CLEVELAND//OH/44106; CASE WESTERN RESERVE UNIV/CLEVELAND//OH/44106
Journal: CATHETERIZATION AND CARDIOVASCULAR DIAGNOSIS, 1994 , V31, N3 (MAR), P240-245
ISSN: 0098-6569
Language: ENGLISH . **Document Type:** ARTICLE
Geographic Location: USA
Subfile: SciSearch; CC CLIN--Current Contents, Clinical Medicine
Journal Subject Category: CARDIOVASCULAR SYSTEM
Abstract: Local intramural delivery of various pharmacologic agents following **angioplasty** has been proposed as a means of reducing **restenosis** . This study tested whether local intramural delivery of aqueous solutions using an infusion **balloon** could be accomplished safely in normal vessels and whether such infusion was safe following standard **angioplasty** in diseased vessels. Infusion of aqueous agents into normal canine **arteries** had no adverse effect. Infusion of several aqueous agents (less-than-or-equal-to 4 cc at 4 atm) into

diseased swine iliac arteries following balloon angioplasty did not worsen existing or create new dissections. Histologically, infusion treated vessels did not differ in either model from vessels treated with angioplasty alone. We conclude that local intramural drug infusion does not create new, or worsen existing, dissections produced during standard balloon angioplasty in diseased vessels. (C)
1994 Wiley-Liss, Inc.

Descriptors--Author Keywords: ANGIOPLASTY ; RESTENOSIS ; INFUSION
BALLOON

Identifiers--KeyWords Plus: CORONARY ANGIOPLASTY ; RESTENOSIS ;
CATHETER; MORPHOLOGY; ARTERIES; MODEL

Research Fronts: 92-1223 003 (CORONARY ANGIOPLASTY ; INTRAVASCULAR
ULTRASOUND; ANGIOGRAPHIC RESTENOSIS)

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TOPOL EJ, 1993, V329, P221, NEW ENGL J MED
WOLINSKY H, 1990, V15, P475, J AM COLL CARDIOL

Title: LOCAL INTRAMURAL DRUG -DELIVERY USING AN INFUSION BALLOON
FOLLOWING ANGIOPLASTY IN NORMAL AND ATHEROSCLEROTIC VESSELS
, 1994

Abstract: Local intramural delivery of various pharmacologic agents following angioplasty has been proposed as a means of reducing restenosis . This study tested whether local intramural delivery of aqueous solutions using an infusion balloon could be accomplished safely in normal vessels and whether such infusion was safe following standard angioplasty in diseased vessels. Infusion of aqueous agents into normal canine arteries had no adverse effect. Infusion of several aqueous agents (less-than-or-equal-to 4 cc at 4 atm) into diseased swine iliac arteries following balloon angioplasty did not worsen existing or create new dissections. Histologically, infusion treated vessels did not differ in either model from vessels treated with angioplasty alone. We conclude that local intramural drug infusion does not create new, or worsen existing, dissections produced during standard balloon angioplasty in diseased vessels. (C)
1994 Wiley-Liss, Inc.

...Identifiers-- CORONARY ANGIOPLASTY ; RESTENOSIS ; CATHETER;
MORPHOLOGY; ARTERIES; MODEL

Research Fronts: 92-1223 003 (CORONARY ANGIOPLASTY ; INTRAVASCULAR
ULTRASOUND; ANGIOGRAPHIC RESTENOSIS)

36/5,K/23 (Item 2 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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11003276 97356588 PMID: 9213024

Treatment of thrombotic saphenous vein bypass grafts using local urokinase infusion therapy with the Dispatch catheter .

Glazier J J; Kiernan F J; Bauer H H; Fram D B; Primiano C A; Mitchel J F; Dougherty J E; McKay R G

Department of Internal Medicine, Hartford Hospital, University of Connecticut 06102, USA.

Catheterization and cardiovascular diagnosis (UNITED STATES) Jul 1997

, 41 (3) p261-7, ISSN 0098-6569 Journal Code: 7508512

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Percutaneous treatment of **thrombotic stenoses** or total occlusions in aged saphenous **vein** bypass grafts is associated with a significant incidence of complications primarily related to distal embolization. The purpose of this study was to assess the efficacy of local urokinase delivery with the Dispatch **catheter** prior to **balloon angioplasty** and/or intragraft stent placement as a new technique of **vein** graft revascularization. Local urokinase delivery with the Dispatch **catheter** was performed in 15 saphenous **vein** grafts (mean age = 11.7 +/- 2.5 yr) in 13 patients with unstable or postinfarction angina. The target lesion was a total **occlusion** in 5 of the procedures and a severe **vein** graft **stenosis** in the remaining 10. In all cases, urokinase was administered directly to the site of the **stenosis / occlusion** via the Dispatch **catheter** at 0.5 cc /min and at a concentration of 30,000 units/ cc . The mean urokinase infusion time for the 15 procedures was 33 +/- 10 min (range = 10-60 min) and the mean urokinase dose was 495,000 +/- 158,000 units (range = 150,000-900,000 units). Following Dispatch therapy, mean minimal **lumen** diameter increased from 0.34 +/- 0.32 to 1.81 +/- 0.78 mm (P < 0.01), mean TIMI flow increased from 1.9 +/- 1.4 to 2.8 +/- 0.8 (P < 0.06), and mean **thrombus** score was reduced from 2.3 +/- 0.6 to 0.3 +/- 0.8 (P < 0.01). Mild no-reflow was noted in two cases, although no patient demonstrated angiographic evidence of gross distal embolization. One of the patients with no reflow also demonstrated a small increase in cardiac enzymes. Subsequent **balloon angioplasty** /stent placement was successful in 14 of the 15 procedures (93% success rate). This preliminary report suggests that pretreatment of **thrombotic** saphenous **vein** graft **stenoses** with local urokinase delivery via the Dispatch **catheter** may decrease intragraft **thrombus** and possibly decrease the incidence of **vascular** complications associated with percutaneous intervention. This technique may allow for recanalization of totally **occluded** **vein** grafts with large clot burdens by using significantly less urokinase and shorter **drug administration** times than conventional **infusion** protocols.

Tags: Comparative Study; Female; Human; Male

Descriptors: **Angioplasty** , Transluminal, Percutaneous **Coronary** --instrumentation--IS; * **Coronary Artery Bypass**; * **Coronary Disease** --surgery--SU; * **Drug** Delivery Systems--instrumentation--IS; *Fibrinolytic Agents-- **administration** and dosage--AD; *Graft **Occlusion** , **Vascular** --drug therapy--DT; * **Thrombolytic Therapy**--instrumentation--IS; *Urinary Plasminogen Activator-- **administration** and dosage--AD; * **Veins** --transplantation--TR; Adult; Aged; **Coronary** Angiography; **Coronary Disease**--radiography--RA; Equipment Design; Graft **Occlusion** , **Vascular** --radiography--RA; Middle Age; Recurrence; Retreatment; Stents; Treatment Outcome

CAS Registry No.: 0 (Fibrinolytic Agents)

Enzyme No.: EC 3.4.21.73 (Urinary Plasminogen Activator)

Record Date Created: 19970821

Record Date Completed: 19970821

Treatment of thrombotic saphenous vein bypass grafts using local urokinase infusion therapy with the Dispatch catheter .

Jul 1997 ,

Percutaneous treatment of **thrombotic stenoses** or total occlusions in aged saphenous **vein** bypass grafts is associated with a significant incidence of complications primarily related to distal embolization...

... of this study was to assess the efficacy of local urokinase delivery with the Dispatch **catheter** prior to **balloon angioplasty** and/or intragraft stent placement as a new technique of **vein** graft revascularization. Local urokinase delivery with the Dispatch **catheter** was performed in 15 saphenous **vein** grafts (mean age = 11.7 +/- 2.5 yr) in 13 patients with unstable or postinfarction angina. The target lesion was a total **occlusion** in 5 of the procedures and a severe **vein** graft **stenosis** in the remaining 10. In all cases, urokinase was administered directly to the site of the **stenosis / occlusion** via the Dispatch **catheter** at 0.5 cc /min and at a concentration of 30,000 units/ cc . The

mean urokinase infusion time for the 15 procedures was 33 +/- 10 min (range = 10...

... 000 +/- 158,000 units (range = 150,000-900,000 units). Following Dispatch therapy, mean minimal lumen diameter increased from 0.34 +/- 0.32 to 1.81 +/- 0.78 mm (P < 0...

...from 1.9 +/- 1.4 to 2.8 +/- 0.8 (P < 0.06), and mean thrombus score was reduced from 2.3 +/- 0.6 to 0.3 +/- 0.8 (P < 0...

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Descriptors: Angioplasty, Transluminal, Percutaneous Coronary --instrumentation--IS; * Coronary Artery Bypass; * Coronary Disease --surgery--SU; * Drug Delivery Systems--instrumentation--IS; *Fibrinolytic Agents-- administration and dosage--AD; *Graft Occlusion, Vascular --drug therapy--DT; * Thrombolytic Therapy--instrumentation--IS; *Urinary Plasminogen Activator-- administration and dosage--AD; * Veins --transplantation--TR; Adult; Aged; Coronary Angiography; Coronary Disease--radiography--RA; Equipment Design; Graft Occlusion, Vascular --radiography--RA; Middle Age; Recurrence; Retreatment; Stents; Treatment Outcome

36/5,K/28 (Item 7 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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07544981 92901505 PMID: 10149895

Anticoagulant effect of iohexol vs. ioxaglate during cardiac catheterization.

Vacek J L; Hibiya K; Rosamond T L; Kramer P H; Crouse L J; Robuck W; Beauchamp G D

Mid America Heart Institute, St. Luke's Hospital, Kansas City, Missouri.

Journal of invasive cardiology (UNITED STATES) Apr 1992, 4 (3) p139-44, ISSN 1042-3931 Journal Code: 8917477

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: HEALTH TECHNOLOGY ASSESSMENT

Contrast agent safety during cardiac catheterization (CC) may relate in part to anti- or procoagulant effect. We studied these effects in 177 patients who underwent standard CC (N=112) or percutaneous transluminal coronary angioplasty (PTCA) (N=65) and received either iohexol (N=111) or ioxaglate (N=66). Patients received either 0 or 2000u heparin for CC or 10,000u for PTCA. The groups were similar in regards to age, sex, amount of contrast used, and procedure time. Partial thromboplastin time (PTT) and activated clotting time (ACT) were both significantly increased (P less than .01) in patients who received 10,000u heparin irrespective of type of contrast agent although larger increases were seen in the iohexol group. With 2000u of heparin, ACT and PTT increased significantly (P less than .01) only in the iohexol group. PTT and ACT actually decreased to similar and significant (P less than .01) degrees after both iohexol and ioxaglate when heparin was not used. We conclude: 1) commonly used measures of anticoagulant (ACT and PTT) show greater prolongation after either 2000 or 10,000u of heparin with iohexol than ioxaglate, 2) ACT and PCT appear to shorten with both iohexol and ioxaglate if no heparin is used. This data would suggest that ioxaglate does not have an anticoagulant advantage over iohexol.

Tags: Comparative Study; Human; Male

Descriptors: **Anticoagulants** --pharmacology--PD; *Heart Catheterization ; *Iohexol--pharmacology--PD; *Ioxaglic Acid--pharmacology--PD; Aged; **Angioplasty** , Transluminal, Percutaneous **Coronary** ; Heparin --administration and dosage--AD; Middle Age; Partial **Thromboplastin** Time; Prospective Studies; Whole Blood Coagulation Time

CAS Registry No.: 0 (Anticoagulants); 59017-64-0 (Ioxaglic Acid); 66108-95-0 (Iohexol); 9005-49-6 (Heparin)

Record Date Created: 19920827

Record Date Completed: 19920827

Anticoagulant effect of iohexol vs. ioxaglate during cardiac catheterization .

Apr 1992 ,

Contrast agent safety during cardiac **catheterization** (CC) may relate in part to anti- or procoagulant effect. We studied these effects in 177 patients who underwent standard CC (N=112) or percutaneous transluminal **coronary angioplasty** (PTCA) (N=65) and received either iohexol (N=111) or ioxaglate (N=66). Patients received either 0 or 2000u heparin for CC or 10,000u for PTCA. The groups were similar in regards to age, sex, amount of contrast used, and procedure time. Partial **thromboplastin** time (PTT) and activated clotting time (ACT) were both significantly increased (P less than .01...

... iohexol and ioxaglate when heparin was not used. We conclude: 1) commonly used measures of **anticoagulant** (ACT and PTT) show greater prolongation after either 2000 or 10,000u of heparin with...

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Descriptors: **Anticoagulants** --pharmacology--PD; *Heart Catheterization ; *Iohexol--pharmacology--PD; *Ioxaglic Acid--pharmacology--PD; Aged; **Angioplasty** , Transluminal, Percutaneous **Coronary** ; Heparin --administration and dosage--AD; Middle Age; Partial **Thromboplastin** Time; Prospective Studies; Whole Blood Coagulation Time

Chemical Name: **Anticoagulants** ; Ioxaglic Acid; Iohexol; Heparin

36/5,K/32 (Item 11 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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07300371 92163303 PMID: 1983582

Systemic lysis in subacute arterial occlusion]

Systemische Lyse bei subakuten **Arterienverschlüssen** .

Martin M; Fiebach B J

Geriatrische Klinik, Stadtische Kliniken, Duisburg.

Langenbecks Archiv fur Chirurgie. Supplement II, Verhandlungen der Deutschen Gesellschaft fur Chirurgie. Deutsche Gesellschaft fur Chirurgie. Kongress (GERMANY) 1990 , p417-20, ISSN 0173-0541 Journal Code: 9200455

Document type: Journal Article ; English Abstract

Languages: GERMAN

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

The therapeutic regimen used consisted of an ultrahigh streptokinase dosage scheme with an **infusion rate** of 1.5 million units per hour over a period of 6 hours. Where no immediate clearance occurred or where residual **stenoses** persisted, a **catheter** dilation (PTA) was subsequently carried out. Favorable results were achieved in the group of up to 6 week old femoral **occlusions** with 2 or 3 calf **arteries** open and an **occlusion** length below 15 cm. Iliac **occlusions** responded well to lytic treatment if a 3 month history was not exceeded.

Tags: Human

Descriptors: **Arterial Occlusive Diseases-- drug therapy--DT**; * **Ischemia -- drug therapy --DT**; *Leg--blood supply--BS; *Streptokinase --administration and dosage--AD; * **Thrombolytic Therapy--methods--MT**; **Angioplasty , Balloon ; Arterial Occlusive Diseases--radiography--RA**; Combined Modality Therapy; Dose-Response Relationship, **Drug ; Drug**

Administration Schedule; Infusions, **Intravenous** ; **Ischemia** --radiography
--RA

Enzyme No.: EC 3.4.- (Streptokinase)

Record Date Created: 19920331

Record Date Completed: 19920331

Systemic lysis in subacute arterial occlusion]
Systemische Lyse bei subakuten Arterienverschlüssen .
1990 ,

The therapeutic regimen used consisted of an ultrahigh streptokinase dosage scheme with an **infusion rate** of 1.5 million units per hour over a period of 6 hours. Where no immediate clearance occurred or where residual **stenoses** persisted, a **catheter dilation** (PTA) was subsequently carried out. Favorable results were achieved in the group of up to 6 week old femoral **occlusions** with 2 or 3 calf **arteries** open and an **occlusion** length below 15 cm. Iliac **occlusions** responded well to lytic treatment if a 3 month history was not exceeded.

Descriptors: **Arterial Occlusive Diseases**-- **drug therapy**--DT; *
Ischemia -- **drug therapy** --DT; *Leg--blood supply--BS; *Streptokinase
--administration and dosage--AD; * **Thrombolytic Therapy**--methods--MT;
Angioplasty , Balloon ; Arterial Occlusive Diseases--radiography--RA;
Combined Modality Therapy; Dose-Response Relationship, **Drug ; Drug**
Administration Schedule; Infusions, **Intravenous** ; **Ischemia** --radiography
--RA

36/5,K/37 (Item 16 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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06331160 89347441 PMID: 2763230

Differential lung function in an infant with the Swyer-James syndrome.

Avital A; Shulman D L; Bar-Yishay E; Noviski N; Schachter J; Krausz Y;
Godfrey S

Pulmonary Function Laboratory, Hadassah University Hospital, Jerusalem,
Israel.

Thorax (ENGLAND) Apr 1989 , 44 (4) p298-302, ISSN 0040-6376

Journal Code: 0417353

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

A previously healthy two year old boy had an adenoviral infection at the age of 13 months and developed hyperlucency of the left lung, chronic respiratory distress, and failure to thrive. Bronchodilators and steroid treatment had no effect. **Radionuclide** lung scans using an **intravenous** bolus of xenon-133 both before and after treatment showed substantially reduced function on the hyperlucent side and modestly reduced function on the other side. Fibreoptic bronchoscopy showed no structural abnormalities. Partial forced expiratory flow volume (PEFV) curves, generated from end inspiration by rapid compression of the chest wall with an **inflatable** jacket, were obtained from the total respiratory system and from each lung separately by **inflating** a Fogarty **catheter** in the contralateral mainstem bronchus. Expiratory **flow rates** and volumes during both tidal breathing and PEFV manoeuvres were considerably decreased in the hyperlucent lung. PEFV curves from the "healthy" right lung and from the total respiratory system were similar in shape and showed a moderately **obstructive** pattern. The right lung ventilated about four times as much as the left when measured by bronchspirometry and about three times as much when measured by the **radionuclide** technique. The lung scans appeared to reflect adequately the functional abnormality in this infant with the Swyer-James syndrome.

Tags: Case Report; Human; Male

Descriptors: Lung--physiopathology--PP; *Lung Diseases, **Obstructive**
--physiopathology--PP; Child, Preschool; Lung-- **radionuclide** imaging--RI;
Lung Diseases, **Obstructive** -- **radionuclide** imaging--RI; Respiratory
Function Tests; Syndrome; Xenon **Radioisotopes** --diagnostic use--DU

CAS Registry No.: 0 (Xenon Radioisotopes)

Record Date Created: 19890908

Record Date Completed: 19890908

Apr 1989 ,

... lung, chronic respiratory distress, and failure to thrive. Bronchodilators and steroid treatment had no effect. **Radionuclide** lung scans using an **intravenous** bolus of xenon-133 both before and after treatment showed substantially reduced function on the...

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Descriptors: Lung--physiopathology--PP; *Lung Diseases, **Obstructive** --physiopathology--PP; Child, Preschool; Lung-- **radionuclide** imaging--RI; Lung Diseases, **Obstructive** -- **radionuclide** imaging--RI; Respiratory Function Tests; Syndrome; Xenon **Radioisotopes** --diagnostic use--DU

Chemical Name: Xenon **Radioisotopes**

36/5,K/39 (Item 18 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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05575258 87254485 PMID: 3599210

The effect of papaverine on arterial and venous hemodynamics of erection.

Delcour C; Wespes E; Vandenbosch G; Schulman C C; Struyven J

Journal of urology (UNITED STATES) Jul 1987 , 138 (1) p187-9,

ISSN 0022-5347 Journal Code: 0376374

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: AIM; INDEX MEDICUS

The aim of this study was to establish how much of the erectogenic effect of papaverine is due to **arterial** dilatation and how much to **venous obstruction** during artificial erection. Three consecutive cavernosographies were done on each of 10 psychogenic impotent patients: a baseline run without papaverine; a run with papaverine (60 mg. intracavernously) after **occlusion** of **arterial** supply to the corpora cavernosa with **balloon catheters inflated** at the origin of the hypogastric **arteries** ; and a third run after restoring **arterial** blood supply to the corpora. The measured **flow rates** indicated that during cavernosography in papaverine-induced erection, the major effect of papaverine is to increase the resistance to **venous** outflow from the corpora cavernosa.

Tags: Human; Male

Descriptors: Papaverine--pharmacology--PD; *Penile Erection-- **drug** effects--DE; *Penis--blood supply--BS; Adult; Hemodynamics-- **drug** effects--DE; Impotence--diagnosis--DI; Middle Age; Regional Blood Flow-- **drug** effects--DE; **Vascular** Resistance-- **drug** effects--DE

CAS Registry No.: 58-74-2 (Papaverine)

Record Date Created: 19870727

Record Date Completed: 19870727

The effect of papaverine on arterial and venous hemodynamics of erection.

Jul 1987 ,

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Descriptors: Papaverine--pharmacology--PD; *Penile Erection-- drug effects--DE; *Penis--blood supply--BS; Adult; Hemodynamics-- drug effects--DE; Impotence--diagnosis--DI; Middle Age; Regional Blood Flow-- drug effects--DE; Vascular Resistance-- drug effects--DE

36/5,K/45 (Item 24 from file: 155)

DIALOG(R) File 155:MEDLINE(R)

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03592395 82002858 PMID: 122266

Nitroglycerin in acute myocardial infarction. X. Effect of small and large doses of nitroglycerin on sigma ST segment deviation -- experimental and clinical results.

Bussmann W D; Schofer H; Kurita A; Ganz W

Clinical cardiology (UNITED STATES) Apr 1979 , 2 (2) p106-12, ISSN 0160-9289 Journal Code: 7903272

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

The purpose of the present study was to investigate the effect of the dose of nitroglycerin (NTG) on myocardial **ischemic** injury. In 20 closed chest dogs the anterior descending branch of the left **coronary artery** was **occluded** by **inflating** a **balloon** in its **lumen** . Compared with the untreated control group the sigma ST elevation was significantly lower when NTG was applied at a rate of 0.02 mg/min, but significantly higher when NTG was administered at a rate of 0.10 mg/min. In 12 patients with acute myocardial infarction NTG was infused at a rate of 3 mg in the first hour (0.05 mg/min) and 6 mg in the second hour (0.1 mg/min). Sigma ST elevation and sigma ST depression decreased during the lower **infusion rate** (p less than 0.001). When the rate of NTG infusion was raised to 6 mg/hr, the improvement in ST segment deviation was partially reversed. This effect, particularly evident in patients not in heart failure, was associated with a significant rise in heart rate (p less than 0.05) and a fall in diastolic **arterial** pressure (p less than 0.025). Patients with left ventricular failure were less sensitive to higher doses of NTG than those without failure. Thus, the effect of NTG on myocardial **ischemic** injury depends on the NTG dose and on the functional state of the injured left ventricle.

Tags: Animal; Female; Human; Male

Descriptors: Electrocardiography; *Myocardial Infarction-- drug therapy--DT; *Nitroglycerin--administration and dosage--AD; Dogs; Heart Ventricle--physiopathology--PP; Hemodynamics-- drug effects--DE; Myocardial Infarction--pathology--PA; Myocardial Infarction--physiopathology--PP; Nitroglycerin--pharmacology--PD

CAS Registry No.: 55-63-0 (Nitroglycerin)

Record Date Created: 19811122

Record Date Completed: 19811122

Apr 1979 ,

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36/5,K/49 (Item 4 from file: 73)
DIALOG(R)File 73:EMBASE
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06917515 EMBASE No: 1997201960

Treatment of thrombotic saphenous vein bypass grafts using local urokinase infusion therapy with the dispatch catheter

Glazier J.J.; Kiernan F.J.; Bauer H.H.; Fram D.B.; Primiano C.A.; Mitchel J.F.; Dougherty J.E.; McKay R.G.

Dr. R.G. McKay, Cardiac Laboratory, Hartford Hospital, 80 Seymour Street, Hartford, CT 06102 United States

Catheterization and Cardiovascular Diagnosis (CATHETER. CARDIOVASC.

DIAGN.) (United States) 1997, 41/3 (261-267)

CODEN: CCDID ISSN: 0098-6569

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 13

Percutaneous treatment of **thrombotic stenoses** or total **occlusions** in aged saphenous **vein** bypass grafts is associated with a significant incidence of complications primarily related to distal embolization. The purpose of this study was to assess the efficacy of local urokinase delivery with the Dispatch **catheter** prior to **balloon angioplasty** and/or intragraft stent placement as a new technique of **vein** graft revascularization. Local urokinase delivery with the Dispatch **catheter** was performed in 15 saphenous **vein** grafts (mean age = 11.7 +/- 2.5 yr) in 13 patients with unstable or postinfarction angina. The target lesion was a total **occlusion** in 5 of the procedures and a severe **vein** graft **stenosis** in the remaining 10. In all cases, urokinase was administered directly to the site of the **stenosis / occlusion** via the Dispatch **catheter** at 0.5 cc /min end at a concentration of 30,000 units/ cc . The mean urokinase infusion time for the 15 procedures was 33 +/- 10 min (range = 10- 60 min) and the mean urokinase dose was 495,000 +/- 158,000 units (range = 150,000-900,000 units). Following Dispatch therapy, mean minimal **lumen** diameter increased from 0.34 +/- 0.32 to 1.81 +/- 0.78 mm (P < 0.01), mean TIMI flow increased from 1.9 +/- 1.4 to 2.8 +/- 0.8 (P <: 0.06), and mean **thrombus** score was reduced from 2.3 +/- 0.6 to 0.3 +/- 0.8 (P<: 0.01). Mild no reflow was noted in two cases, although no patient demonstrated angiographic evidence of gross distal embolization. One of the patients with no reflow also demonstrated a small increase in cardiac enzymes. Subsequent **balloon angioplasty** /stent placement was successful in 14 of the 15 procedures (93% success rate). This preliminary report suggests that pretreatment of **thrombotic** saphenous **vein** graft **stenoses** with local urokinase delivery via the Dispatch **catheter** may decrease intragraft **thrombus** and possibly decrease the incidence of **vascular** complications associated with percutaneous intervention. This technique may allow for recanalization of totally **occluded vein** grafts with large clot burdens by using significantly less urokinase and shorter **drug**

administration times than conventional infusion protocols.

BRAND NAME/MANUFACTURER NAME: abbokinase/abbott; persantine; nitroglycerin; aspirin; coumadin

MANUFACTURER NAMES: abbott

DRUG DESCRIPTORS:

*urokinase-- drug administration --ad; *urokinase-- drug therapy--dt
acetylsalicylic acid; beta adrenergic receptor blocking agent; calcium
channel blocking agent; dipyridamole; glyceryl trinitrate; heparin;
plasminogen activator; verapamil; warfarin

MEDICAL DESCRIPTORS:

*angina pectoris--surgery--su; *bypass surgery; *graft occlusion
--complication--co; *graft occlusion --drug therapy--dt; *saphenous vein
graft; * thrombosis --complication--co; * thrombosis -- drug therapy --dt
adult; aged; angiography; article; artificial embolism; balloon catheter
; clinical article; clinical protocol; controlled study; drug infusion ;
female; fibrinolytic therapy; guide wire; human; human tissue; intravenous
drug administration ; male; percutaneous transluminal angioplasty ;
revascularization; stent

CAS REGISTRY NO.: 139639-24-0 (urokinase); 493-53-8, 50-78-2, 53663-74-4,
53664-49-6, 63781-77-1 (acetylsalicylic acid); 58-32-2 (dipyridamole);
55-63-0 (glyceryl trinitrate); 37187-54-5, 8057-48-5, 8065-01-8,
9005-48-5 (heparin); 9039-53-6 (plasminogen activator); 152-11-4,
52-53-9 (verapamil); 129-06-6, 2610-86-8, 3324-63-8, 5543-58-8, 81-81-2
(warfarin)

SECTION HEADINGS:

- 006 Internal Medicine
- 018 Cardiovascular Diseases and Cardiovascular Surgery
- 027 Biophysics, Bioengineering and Medical Instrumentation
- 037 Drug Literature Index

Treatment of thrombotic saphenous vein bypass grafts using local urokinase infusion therapy with the dispatch catheter

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DRUG DESCRIPTORS:

*urokinase-- drug administration --ad; *urokinase-- drug therapy--dt

MEDICAL DESCRIPTORS:

*angina pectoris--surgery--su; *bypass surgery; *graft occlusion
--complication--co; *graft occlusion --drug therapy--dt; *saphenous vein
graft; * thrombosis --complication--co; * thrombosis -- drug therapy --dt
adult; aged; angiography; article; artificial embolism; balloon catheter
; clinical article; clinical protocol; controlled study; drug infusion ;
female; fibrinolytic therapy; guide wire; human; human tissue; intravenous
drug administration ; male; percutaneous transluminal angioplasty ;
revascularization; stent

SECTION HEADINGS:

...Internal Medicine

018 Cardiovascular Diseases and Cardiovascular Surgery

027 Biophysics, Bioengineering and Medical Instrumentation

037 Drug Literature Index

1997

?

Set	Items	Description
S1	175992	(VENOUS OR VEIN? OR ARTERY OR ARTERI? OR VASCULAR? OR INTR- ?VASC? OR INTR?VEN? OR BLOOD?())VESSEL? OR VENAL OR CORONAR?)
S2	78229	OCCLUD? OR OCCLUSI? OR OBSTRUCT? OR STENOS? OR STENOT? OR - RESTENOS? OR RESTENOT? OR PLAQUE?
S3	66259	SCLERO? OR THROMB? OR BLOODCLOT? OR BLOOD()CLOT? OR ISCHEM- I? OR ARTER?SCLER? OR PLAQUING
S4	367	CALCIUM()DEPOSIT?
S5	340080	BALLOON? OR PLASTY? OR PLASTIE? ? OR ANGIOPLAST? OR OCCLU- ()DEVICE? OR INFLAT? OR CARDIOPLAST?
S6	1	ARTERIOPLAST?
S7	4824648	DELIVER? OR ADMINIST? OR INJECT? OR INFUS? OR PERFUS?
S8	43377	CATHETER? OR CANNULA? OR CANULA? OR TROCAR? OR LUMEN? OR H- OLLOW?(N)WIRE?
S9	1199591	DRUG? OR NARCOTIC? OR OCCLU?(N)TREAT? OR ANTICOAGUL? OR AN- TI()COAGUL? OR THROMBYT?
S10	8178	RADIONUCLID? OR RADIO()NUCLID? OR RADIOISOTOP? OR RADIO()I- SOTOP? OR RADIOACTIVE()ISOTOP?
S11	6	RADIO()ACTIVE()ISOTOP?
S12	95165	FLOWRATE? OR FLOW()RATE? OR "CC" OR "C.C." OR CUBIC()CENTI- L?
S13	238441	S7(10N)(S9 OR S10 OR S11)
S14	214	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6) AND S8 AND S12
S15	71	S13 AND S14
S16	75218	S3 OR ARTERI?SCLER? OR ARTER?()SCLER? OR ARTHER?SCLER? OR - ARTHUR?()SCLER? OR ATHER?SCLER? OR ATHER?()SCLER?
S17	340117	S5 OR (CARDIO? OR ANGIO?)()PLAST?
S18	1200917	S9 OR THROMBOL?
S19	95709	S12 OR (INFUS? OR PERFUS?)()RATE?
S20	238893	S7(10N)(S9 OR S10 OR S11 OR S18)
S21	242	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6 OR S17) AND S8 AND (- S12 OR S19)
S22	99	S20 AND S21
S23	25838	S1(10N)(S2 OR S3 OR S4)
S24	340118	S5 OR S6 OR S17
S25	238893	S7(10N)(S9 OR S10 OR S11 OR S18)
S26	164	S8(10N)(S12 OR S19)
S27	4	S23 AND S24 AND S25 AND S26
S28	2	S27 AND PY<1999
S29	22480	1(S)(S2 OR S3 OR S4)
S30	22107	29 AND S25
S31	52617	7(S)(S9 OR S10 OR S11 OR S18)
S32	20121	30 AND S31
S33	965	S9(S)(S12 OR S19)
S34	2979	S29 AND S31
S35	235	S31 AND S33
S36	718134	35 AND PY<1999
S37	193	S35 AND PY<1999
S38	118	S37 AND S20
S39	68	S22 AND PY<1999

?show files

File 16:Gale Group PROMT(R) 1990-2003/Sep 26

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File 160:Gale Group PROMT(R) 1972-1989

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File 148:Gale Group Trade & Industry DB 1976-2003/Sep 29

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File 621:Gale Group New Prod.Annou.(R) 1985-2003/Sep 29

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File 444:New England Journal of Med. 1985-2003/Sep W4

(c) 2003 Mass. Med. Soc.

?

39/5,K/3 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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05502178 Supplier Number: 48337153 (USE FORMAT 7 FOR FULLTEXT)
**InterVentional Technologies Announces Successful Completion of FullFlow
Perfusion Dilation Catheter Trials.**
Business Wire, p03050349
March 5, 1998
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 296
PUBLISHER NAME: Business Wire
COMPANY NAMES: *InterVentional Technologies Inc.
EVENT NAMES: *331 (Product development)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: 3842240 (**Angioplasty** Supplies)
INDUSTRY NAMES: BUS (Business, General); BUSN (Any type of business)
NAICS CODES: 339113 (Surgical Appliance and Supplies Manufacturing)
SPECIAL FEATURES: COMPANY

(USE FORMAT 7 FOR FULLTEXT)
**InterVentional Technologies Announces Successful Completion of FullFlow
Perfusion Dilation Catheter Trials.**
TEXT:
...the successful completion of an extensive series of animal trials of the
FullFlow perfusion dilation **catheter** .
... Washington, D.C. They conclusively demonstrate the device's
capability to effectively and safely dilate **coronary arteries** while
allowing near normal physiologic blood- **flow rates** throughout the
procedure.

The FullFlow perfusion dilation **catheter** replaces the traditional
angioplasty balloon with a retracting spring mesh. When deployed in the
vessel, this mesh forms a scaffold...

...for blood flow, while at the same time providing significant radial
dilating force. This new **catheter** facilitates prolonged vessel dilation
without risk of **ischemia** or infarction.

Commenting on Segal's results, Rob Michiels, InterVentional
Technologies' president and chief operating officer, noted: "Not only does
this over-the-wire **catheter** allow more than three times the blood flow of
currently marketed perfusion dilation **balloons** , it also permits
side-branch perfusion and eliminates the need for a **balloon inflation**
/deflation device.

"This is a significant breakthrough for high-risk patients receiving
angioplasty treatment."

The company is assembling these data into an appropriate regulatory
submission and plans to...

...San Diego; Murietta, Calif.; and Letterkenny, Ireland.

The company manufactures and markets worldwide, the TEC **thrombectomy
catheter** , the Cutting **Balloon** microsurgical dilation **catheter** , the
TRACKWIRE family of guide wires, the LP Stent, the INFILTRATOR **arterial**
-wall **drug - delivery catheter** and the IRADIATOR **arterial** -wall
radiotherapy system (see note). -0-

NOTE TO EDITORS: Some products are investigational use only...
PRODUCT NAMES: 3842240 (**Angioplasty** Supplies)
19980305

39/5,K/6 (Item 6 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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03614170 Supplier Number: 45090165 (USE FORMAT 7 FOR FULLTEXT)
**LOCALMED RECEIVES FDA APPROVAL TO MARKET THE INFUSASLEEVE CORONARY
DRUG DELIVERY CATHETER**

PR Newswire, pN/A
Oct 26, 1994
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 441
PUBLISHER NAME: PR Newswire Association, Inc.
COMPANY NAMES: *LocalMed
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1U9CA (California); 1USA (United States)
PRODUCT NAMES: 2834030 (Drug Delivery Systems); 3842242
(Therapeutic Balloon Catheters)
INDUSTRY NAMES: BUS (Business, General); BUSN (Any type of business)
NAICS CODES: 325412 (Pharmaceutical Preparation Manufacturing); 339113 (Surgical Appliance and Supplies Manufacturing)
TRADE NAMES: InfusaSleeve
SPECIAL FEATURES: COMPANY

**LOCALMED RECEIVES FDA APPROVAL TO MARKET THE INFUSASLEEVE CORONARY
DRUG DELIVERY CATHETER**

**CORONARY DRUG
DELIVERY CATHETER**

PALO ALTO, CA., Oct. 26 /PRNewswire/ -- LocalMed, Inc., announced today that it has received FDA approval to market the Kaplan-Simpson InfusaSleeve(TM), a catheter which delivers medication directly to the coronary artery during angioplasty.

With more than a third of the world's 700,000 angioplasty patients requiring a second procedure within six months, the quest for a drug that prevents restenosis has been the industry's holy grail. Nearly fifty pharmaceutical and biotechnology firms are developing...

...in the hope that they will have some impact on this persistent problem. Available anti-thrombotic drugs like heparin, and direct thrombin inhibitors now under investigation, could also be very effective in reducing the risk of abrupt vessel closure in angioplasty after acute myocardial infarction. In all cases, though, the trick lies in delivering the drug to the injured segment of the coronary artery.

LocalMed believes it has the answer. Using its patented, over-the-balloon technology, the Palo Alto company has developed an infusion sleeve which tracks over virtually any angioplasty balloon and can deliver medication directly to the angioplasty site. The InfusaSleeve (TM) uses the existing balloon to position its drug delivery ports against the artery wall, permitting a precise fit within the artery and independent control of drug infusion

, which the company believes is crucial for safe and effective local delivery. This independent control...

...and clinical studies are any indication, they may be right. "Our preclinical trials demonstrated remarkable drug delivery efficiency with almost no injury," said Paul Goeld, LocalMed's CEO, "but our biggest advantages are flexibility and low cost. Drugs can be infused at virtually any pressure, flow rate or volume. It's safe, effective and easy to use." The company is currently planning...

...Frankfurt, Germany and Milan, Italy. The device has been used in combination with most popular angioplasty balloon catheters

and with three commercially available coronary stents. In addition, LocalMed is a collaborative partner in several investigations requiring intramural (arterial wall) delivery.

LocalMed is a private, venture-backed company. Its investors include Brentwood Associates, Burr...

PRODUCT NAMES: 2834030 (Drug Delivery Systems); 3842242
(Therapeutic Balloon Catheters)
19941026

39/5,K/7 (Item 7 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
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01874597 Supplier Number: 42379271
CATHETER **CLEARs** CORONARY ARTERIES
Design News, p88
Sept 23, 1991
ISSN: 0011-9407
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Refereed; Academic Trade

ABSTRACT:

Heart Technology (Bellevue, WA) has developed instrumentation that removes **plaque** deposits from clogged **arteries**. The Rotablator is a pneumatically-powered **angioplasty** system that makes use of a diamond crystal-coated **catheter** tip that erodes **plaque** into particles smaller than red blood cells, eliminating the need for a collection system. The device includes an air- or nitorgen-using power source, a control console, a steerable guide wire 0.009-in in diameter, and an advancer/ **catheter**. Through a small incision in the femoral **artery** the system is inserted and moved to the **plaque** target. Driven by a flexible helical drive shaft, the **catheter** tip rotates at 150,000-rpm to 190,000-rpm. The apparatus also delivers a 10- cc /min saline flush. The instrument is said to be able to deal with any type of **plaque**, even hardened deposits, and to cause no damage to elastic tissue, which just moves out of the way of the **catheter** tip. Work on the system was begun in 1981 by David Auth, now chairman of the \$100 mil privately held company. Sidebars disclose that the device has received approval from the Federal **Drug Administration** (FDA) for use in clearing of periperal **arteries**, and permission for general use on **coronary arteries** is expected in 1991. Investigative use of the Rotablator for **arteries** of the heart has been in progress since 1988.

PUBLISHER NAME: Cahnners Publishing Company

COMPANY NAMES: *Heart Technology Inc.

EVENT NAMES: *330 (Product information)

GEOGRAPHIC NAMES: *1USA (United States)

PRODUCT NAMES: *3841540 (Cardiovascular Therapy Equip)

INDUSTRY NAMES: ARCH (Architecture and Design); BUSN (Any type of business); ELEC (Electronics)

NAICS CODES: 339112 (Surgical and Medical Instrument Manufacturing)

TICKER SYMBOLS: HRTT

SPECIAL FEATURES: COMPANY

CATHETER **CLEARs** CORONARY ARTERIES

ABSTRACT:

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received approval from the Federal Drug Administration (FDA) for use in clearing of peripheral arteries, and permission for general use on coronary arteries is expected in 1991. Investigative use of the Rotablator for arteries of the heart has been in progress since 1988.

...
19910923

39/5,K/12 (Item 5 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
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10050578 SUPPLIER NUMBER: 20358089 (USE FORMAT 7 OR 9 FOR FULL TEXT)
InterVentional Technologies Announces Successful Completion of FullFlow Perfusion Dilation Catheter Trials.
Business Wire, p3050349
March 5, 1998
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 323 LINE COUNT: 00033

COMPANY NAMES: InterVentional Technologies Inc.--Product development
INDUSTRY CODES/NAMES: BUS Business, General; BUSN Any type of business
DESCRIPTORS: Catheter industry--Product development
PRODUCT/INDUSTRY NAMES: 3841544 (Blood Vessel Dilators)
SIC CODES: 3841 Surgical and medical instruments
FILE SEGMENT: NW File 649

InterVentional Technologies Announces Successful Completion of FullFlow Perfusion Dilation Catheter Trials.

TEXT:

...the successful completion of an extensive series of animal trials of the FullFlow perfusion dilation catheter.

... Washington, D.C. They conclusively demonstrate the device's capability to effectively and safely dilate coronary arteries while allowing near normal physiologic blood-flow rates throughout the procedure.

The FullFlow perfusion dilation catheter replaces the traditional angioplasty balloon with a retracting spring mesh. When deployed in the vessel, this mesh forms a scaffold...

...for blood flow, while at the same time providing significant radial dilating force. This new catheter facilitates prolonged vessel dilation without risk of ischemia or infarction.

Commenting on Segal's results, Rob Michiels, InterVentional Technologies' president and chief operating officer, noted: "Not only does this over-the-wire catheter allow more than three times the blood flow of currently marketed perfusion dilation balloons, it also permits side-branch perfusion and eliminates the need for a balloon inflation/deflation device.

"This is a significant breakthrough for high-risk patients receiving angioplasty treatment."

The company is assembling these data into an appropriate regulatory submission and plans to...

...San Diego; Murietta, Calif.; and Letterkenny, Ireland.

The company manufactures and markets worldwide, the TEC thrombectomy catheter, the Cutting Balloon microsurgical dilation catheter, the TRACKWIRE family of guide wires, the LP Stent, the INFILTRATOR arterial-wall drug-delivery catheter and the IRADIATOR arterial-wall radiotherapy system (see note). -0-

NOTE TO EDITORS: Some products are investigational use only...

DESCRIPTORS: Catheter industry...
PRODUCT/INDUSTRY NAMES: 3841544 (Blood Vessel Dilators)
19980305

39/5,K/22 (Item 15 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
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06722964 SUPPLIER NUMBER: 14405696 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Prehospital-initiated vs hospital-initiated thrombolytic therapy: the myocardial infarction triage and intervention trial.
Weaver, W. Douglas; Cerqueira, Manuel; Hallstrom, Alfred P.; Litwin, Paul E.; Martin, Jenny S.; Kudenchuk, Peter J.; Eisenberg, Mickey
JAMA, The Journal of the American Medical Association, v270, n10, p1211(6) Sept 8, 1993
ISSN: 0098-7484 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 5603 LINE COUNT: 00470

ABSTRACT: Beginning **thrombolytic** therapy for heart attacks before hospital admission did not significantly improve patients' chances for survival or reduce complications. However, treatment begun within 70 minutes of the onset of symptoms reduced the number of complications and lessened the impact of the attack. **Thrombolytic** therapy is used to dissolve **blood clots** or prevent them from forming. A total of 360 patients who called paramedics and were suspected of having a heart attack were randomly assigned to one of two groups. One group received aspirin and **thrombolytic** therapy before arriving at the hospital; the other group did not. Patients who received treatment before arriving at the hospital began treatment 33 minutes earlier than the other patients. Measurements of the outcome of the two treatment strategies did not differ between the two groups.

AUTHOR ABSTRACT: Objective.--To determine the effect of prehospital-initiated vs hospital-initiated treatment of myocardial infarction on clinical outcome. Design.--Randomized, controlled clinical trial. Setting.--Multicenter study involving 19 hospitals and all paramedic systems in the Seattle, Wash, metropolitan area. Patients.--A total of 360 patients with symptoms for 6 hours or less, no risk factors for serious bleeding, and ST-segment elevation were selected by paramedics and a remote physician for inclusion into the trial. They represented 4% of patients with chest pain who were screened and 21% of those with acute infarction. Interventions.--Patients were allocated to have aspirin and alteplase treatment initiated before or after hospital arrival. **Intravenous** sodium heparin was administered to both groups in the hospital. Main Outcome Measure.--The primary endpoint was a ranked composite score (combining death, stroke, serious bleeding, and infarct size). The relation between time to treatment and outcome (composite score, infarct size, ejection fraction, and mortality) was also assessed. Results.--Initiating treatment before hospital arrival decreased the interval from symptom onset to treatment from 110 to 77 minutes ($P<.001$). Although more patients whose therapy was initiated before hospital arrival had resolution of pain by admission (23% vs 7%; $P<.001$), there were no significant differences in the composite score ($P=.64$), mortality (5.7% vs 8.1%), ejection fraction (53% vs 54%), or infarct size (6.1% vs 6.5%). A secondary analysis of time to treatment and outcome showed that treatment initiated within 70 minutes of symptom onset was associated with better outcome (composite score, $P=.009$; mortality, 1.2% vs 8.7%, $P=.04$; infarct size, 4.9% vs 11.2%, $P<.001$; and ejection fraction, 53% vs 49%, $P=.03$) than later treatment. Identification of patients eligible for **thrombolysis** by paramedics reduced the hospital treatment time from 60 minutes (for patients not in the study) to 20 minutes (for study patients allocated to begin treatment in the hospital). Conclusion.--There was no improvement in outcome associated with initiating treatment before hospital arrival; however, treatment within 70 minutes of symptom onset--whether in the hospital or in the field--minimized the infarct process and its complications. (JAMA. 1993;270:1211-1216)

SPECIAL FEATURES: illustration; table; graph; chart
INDUSTRY CODES/NAMES: HLTH Healthcare
DESCRIPTORS: Heart attack--Care and treatment; **Thrombolytic** therapy--Administration and dosage; Triage (Medicine)--Evaluation
FILE SEGMENT: MI File 47

Prehospital-initiated vs hospital-initiated thrombolytic therapy: the

myocardial infarction triage and intervention trial.

ABSTRACT: Beginning **thrombolytic** therapy for heart attacks before hospital admission did not significantly improve patients' chances for survival...

...onset of symptoms reduced the number of complications and lessened the impact of the attack. **Thrombolytic** therapy is used to dissolve **blood clots** or prevent them from forming. A total of 360 patients who called paramedics and were...

...heart attack were randomly assigned to one of two groups. One group received aspirin and **thrombolytic** therapy before arriving at the hospital; the other group did not. Patients who received treatment...

...AUTHOR ABSTRACT: Patients were allocated to have aspirin and alteplase treatment initiated before or after hospital arrival. **Intravenous** sodium heparin was administered to both groups in the hospital. Main Outcome Measure.--The primary...

...ejection fraction, 53% vs 49%, $P=.03$) than later treatment. Identification of patients eligible for **thrombolysis** by paramedics reduced the hospital treatment time from 60 minutes (for patients not in the...

TEXT:

SEVERAL placebo-controlled trials of **intravenous thrombolytic** therapy have shown the greatest mortality reduction in the subset of patients with acute myocardial infarction receiving **thrombolytic** therapy in the first hour from symptom onset.[1-4]

... evaluation in the emergency department, and treatment after admission, it is virtually impossible to provide **thrombolytic** drug treatment within the first hour of symptoms to any meaningful proportion of patients with...

...physicians staff ambulances, it was shown in a nonrandomized comparison that very early initiation of **thrombolytic** drug treatment was associated with improved global left ventricular function.[5] Prehospital emergency care in...

...a variety of medical emergencies, primarily using protocol-driven approaches.

To evaluate whether prehospital-initiated **thrombolytic** drug treatment is feasible, safe, and beneficial for patients, a prospective, randomized, controlled trial of prehospital-initiated vs hospital-initiated **thrombolytic** therapy was performed.

METHODS

Patient Identification and Treatment The criteria used to select patients for prehospital initiation of **thrombolytic** therapy have been described.[6] All 15 prehospital care teams in the Seattle, Wash, metropolitan...

...those who consented (only one refused) were randomized to receive either prehospital- or hospital-initiated **thrombolytic** drug treatment. Full written information was provided and consent for follow-up was obtained from...

...pump) was available in the emergency department. All patients received standard basic medical care (oxygen, **intravenous cannulation**, and rhythm monitoring) during the prehospital treatment period. In addition, morphine sulfate was used for...

...patient groups at the time of hospital arrival. A 5000-U bolus, followed by continuous **intravenous** infusion, was administered for at least 48 hours. The **infusion rate** was adjusted by activated **thromboplastin**-time testing to maintain a 60- to 100-second range. The design and methods of...total of 360 patients were identified for randomization in the trial, 175 to prehospital-initiated **thrombolysis**, and 185 to hospital-initiated **thrombolysis** (Fig 1). Also, 130 patients with ST elevation were not enrolled in the trial. Most hospital arrival was 15 minutes longer for the

prehospital **thrombolysis** group, reflecting the time required to mix and initiate the **infusion** of alteplase. The total time from symptom onset to treatment for the prehospital- and hospital...

...33 [+ or -] 18 minutes. The cumulative distributions of time from symptom onset to initiation of **thrombolytic** therapy are depicted in Fig 2. Both groups were treated relatively soon after symptom onset...

...175 prehospital-allocated patients and all but 23 of the 185 hospital-allocated patients received **thrombolytic** therapy (overall, 336 of 360, or 93%). Of those not receiving **thrombolytic** drug treatment after randomization, some died before treatment could be initiated (n=4), had direct **coronary angioplasty** as an alternative treatment after initial physician assessment in the hospital (n=6), or were...

...also for those patients allocated to hospital-initiated treatment. A total of 579 patients received **thrombolytic** therapy in the same hospitals during the period of the trial, but were not randomized onset to receipt of **thrombolytic** therapy.

Three quarters of patients treated within 3 hours had an infarct size of 10...

...to determine, with a high degree of certainty, whether a patient was a candidate for **thrombolytic** therapy.

Computer-interpreted ECG was useful in enhancing selection accuracy and helped to minimize interpretation...

...elevation, its high specificity seems useful to nonexperts in excluding patients with nondiagnostic ECGs for **thrombolytic** treatment, and thus this approach should be considered in other situations in which expert consultation...

...carefully validated before being used for this purpose.[23]

No evidence suggested that paramedic-initiated **thrombolytic** therapy was associated with more complications. The incidence of cardiac arrest following treatment was low...

...and overlapped the reported rates for prior larger trials in which the combination of aspirin, **intravenous** heparin, and **thrombolytic** drugs have been **administered**.

When prehospital notification of the patient's condition was provided to the receiving hospital, as...

...to the hospital-treatment group were treated 40 minutes faster than concurrent, nonrandomized patients receiving **thrombolytic** therapy in the same hospitals. Except for the patients treated in this clinical trial, hospital...

...patients receiving prehospital-initiated and hospital-initiated treatment.

Unlike other reports evaluating the effects of **thrombolytic** therapy, essentially all patients received treatment within the first 3 hours of symptom onset. In...

...not be explained by other baseline variables. This positive effect of very early use of **thrombolytic** therapy further extends observations of others.[5,30]

Remarkably, 40% of all patients treated during...

...essentially aborted. This marked attenuation in infarct size is in contrast to previous western Washington **thrombolysis** trials, including a recent one in which alteplase was used in the emergency department but...

...had infarct sizes of 10% or less.[31]

The excellent outcomes associated with very early **administration** of **thrombolytic** drugs have several implications. The findings point out the need for public education programs aimed at...

...physicians and nurses are aware of the excessive in-hospital treatment

times for patients receiving **thrombolysis**, hospital delays in the United States, with very few exceptions, have remained relatively constant at...

...plan in most hospitals. In the Global Utilization of Streptokinase and Tissue Plasminogen Activator for **Occluded Coronary Arteries** (GUSTO) **thrombolysis** trial, the average delay before treatment in US hospitals was almost 80 minutes; only 3...30-minute standard for treatment can be achieved for the vast majority of patients receiving **thrombolytic** therapy.

In summary, this randomized trial evaluating the strategy of prehospital initiation of **thrombolytic** drug therapy by paramedics showed that appropriate patient selection is possible using the screening skills ...

...demonstrates that through protocol-driven approaches that include prehospital identification of potentially eligible patients for **thrombolysis**, hospital treatment times can be substantially reduced from the current 60 to 90 minutes to...

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...DESCRIPTORS: **Thrombolytic** therapy
19930908

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06156208 SUPPLIER NUMBER: 12721944 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Reperfusion and revascularization strategies for coronary artery disease in women.

Eysmann, Susan B.; Douglas, Pamela S.

JAMA, The Journal of the American Medical Association, v268, n14, p1903(5)
Oct 14, 1992

ISSN: 0098-7484 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 5363 LINE COUNT: 00444

ABSTRACT: A review of the literature on the treatment of **coronary artery** disease found that women may benefit from many of the strategies used on men, including **thrombolytic** drugs, percutaneous transluminal **coronary angioplasty** (PTCA) and **coronary artery** bypass grafting (CABG). **Thrombolytic** drugs break up the **blood clots** that cause most heart attacks. **Thrombolytic** therapy substantially reduces mortality after a heart attack in both men and women, although the reduction in mortality is not as great in women as it is in men. PTCA was initially found to be less effective in women, but this may have been because the **balloons** used were too big. The studies show that women have more complications during the procedure, but have a similar long-term outcome as men. The same is true for CABG; long-term survival is the same in women as in men, although fewer women may experience relief from angina. The higher complication rate in women may be a reflection of their older age.

AUTHOR ABSTRACT: Objective.--One third of all deaths in women in the United States each year are attributable to **coronary** heart disease. Gender differences exist in the course and management of patients with **coronary** heart disease. Few randomized trials have been conducted in women to evaluate effective therapeutic strategies. With the aim of developing rational approaches to women with **coronary** heart disease, we review gender-related outcomes with **coronary** revascularization and reperfusion

therapies.

Data Source.--English-language journal articles and reviews on the subject of women with **coronary** heart disease or gender-specific responses to **coronary** heart disease management, from 1970 through 1992, identified through MEDLINE searching.

Study Selection. Selected studies included only randomized controlled trials for topics related to **thrombolysis**, and articles considered to contribute significantly to the topic of women with **coronary artery** disease in the case of **angioplasty** and **coronary artery** bypass grafting.

Data Extraction.--Two reviewers participated in extracting the data with the aim of presenting a balanced and comprehensive review of the subject.

Data Synthesis.-- **Thrombolysis** in acute myocardial infarction reduces mortality in men and women, although women may have a reduced mortality benefit compared with men. **Angioplasty** and the newer interventional devices result in greater procedural morbidity but similar if not better long-term outcomes in women. Women may have a greater mortality rate than men with **coronary artery** bypass surgery, although studies suggest that outcome after bypass surgery may depend more on **coronary** size and preoperative risk factors than on gender itself.

Conclusions. The existence of gender differences in the course of **coronary** heart disease and response to revascularization and reperfusion strategies suggests the need for unique clinical approaches to the female patient with **coronary** heart disease and stresses the importance of developing randomized trials that enroll adequate numbers of women and that are designed to answer genderspecific questions.

SPECIAL FEATURES: illustration; table

INDUSTRY CODES/NAMES: HLTH Healthcare

DESCRIPTORS: **Coronary** heart disease--Care and treatment; **Thrombolytic** therapy--Demographic aspects; **Coronary artery** bypass--Demographic aspects; Transluminal **angioplasty** --Demographic aspects; Women--Diseases

FILE SEGMENT: MI File 47

Reperfusion and revascularization strategies for coronary artery disease in women.

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Conclusions. The existence of gender differences in the course of **coronary** heart disease and response to revascularization and reperfusion strategies suggests the need for unique clinical approaches to the female patient with **coronary** heart disease and stresses the importance of developing randomized trials that enroll adequate numbers of...

TEXT:

...disease is the leading cause of death in men and women in the United States. **Coronary** heart disease accounts for 250000 deaths in US women each year and is responsible for...

...in US women. Nevertheless, a number of recent studies suggest that physicians' diagnostic approaches to **coronary** heart disease and subsequent treatment strategies may be less aggressive in women than in men ...

...poor accuracy of stress testing in women, to the perception of a low prevalence of **coronary** disease and of a good outcome from **coronary** disease in women, and to differences in medical care offered to men and women. Since gender differences in the underlying pathophysiology of **coronary** disease and in the response to therapeutic interventions may justify differential treatment, the significance of...

Reperfusion and revascularization utilizing **thrombolysis**, **angioplasty**, and bypass surgery are the mainstays of significant **coronary** heart disease management. However, few randomized trials have been conducted in women to evaluate strategies based on these techniques. We will review the data on the effectiveness of **thrombolysis** in acute myocardial infarction and of revascularization using percutaneous transluminal **coronary angioplasty** (PTCA) and **coronary artery** bypass grafting (CABG) in women. The available data do not directly compare the risks and...

...decision making. They do, however, establish the existence of gender differences in the course of **coronary** heart disease and in the response to revascularization strategies, underscoring the need for unique clinical approaches to the female patient.

THROMBOLYSIS IN ACUTE MYOCARDIAL INFARCTION

Studies vary as to whether the immediate and long-term prognosis...

...most available studies of gender-related prognosis after myocardial infarction predate the widespread use of **thrombolysis** in the management of acute myocardial infarction, so that few data are available for mortality...

...studies have revealed no significant differences in the pharmacokinetics of tissue-type plasminogen activator or **coronary artery** patency rates in men vs women in the setting of acute myocardial infarction.[14] Most important, **intravenous thrombolytic** therapy in acute myocardial infarction reduces mortality rates in both sexes. Nevertheless, gender differences in mortality rates have been found in subgroup analyses. The Table reviews the major **thrombolysis** trials that have reported mortality data by gender. The second International Study of Infarct Survival (ISIS2) [15] is the largest published trial of **thrombolysis** in acute myocardial infarction. This study randomized 3945 women and 13 125 men to **intravenous** streptokinase therapy, oral aspirin therapy, both, or neither. Both men and women benefited most from...

...della Streptochinasi nell'Infarto Miocardico, part 1 (GISSI-1), [16,17] and several other, smaller **thrombolysis** trials (Anglo-Scandinavian Study of Early **Thrombolysis** [ASSET],[18] European Working Party,[19] and Western Washington Trial [20,21]) in the Table, three patterns become apparent. First, **intravenous thrombolysis** therapy clearly reduced

mortality rates in the setting of an acute myocardial infarction in both...

...after myocardial infarction were higher among women than among men in both the placebo and **thrombolysis** groups. Third, GISSI excluded, these randomized trials have shown a relatively lower reduction in mortality...

...of women presenting with myocardial infarction contributes to their relatively lesser reduction in mortality after **thrombolysis**. However, data from GISSI-2, a randomized trial comparing streptokinase therapy alone, streptokinase therapy plus...

...less effective preservation of myocardial function, or that women have more frequent cardiac events after **thrombolysis**. Unfortunately, genderspecific differences in recovery of left ventricular function or recurrent cardiac events have not...

...be more prevalent in women, especially younger women; while clearly speculative, if this were true, **thrombolysis** might be less effective among women than among men, in whom **coronary thrombosis** is thought to be nearly universal.

Another hypothesis is that women have a greater number of complications with **thrombolysis** than men, in part because they are older. In the **Thrombolysis** and **Angioplasty** in Myocardial Infarction (TAMI) trials, female gender was not an independent predictor of inhospital mortality...

...elderly women compared with all other patients enrolled, independent of infarct vessel patency and subsequent **angioplasty** success rate. [23] In the **Thrombolysis** in Myocardial Infarction (TIMI) phase II trial, patients received a 100-mg dose of recombinant tissue-type plasminogen activator and were randomized to a conservative strategy in which **coronary** angiography was performed only if there was recurrent spontaneous or exercise-induced **ischemia**. With this treatment, 5.9% of women v s 3.8% of men had a...

...and emphasize the potential importance of weight-, age-, and/or gender-based dosage modification of **thrombolytic** agents, issues that have not been adequately addressed by many **thrombolysis** trials to date. Recent data from the GISSI-2 study also demonstrated an excess of...a circumstance unique to women, there are no published data regarding the bleeding risks of **thrombolysis** therapy in the rare menstruating woman who presents with myocardial infarction.

Finally, although the Table reveals lower relative reductions in mortality rates with **thrombolysis** in women than in men, absolute reductions appear similar. For example, in ISIS-2, **thrombolysis** reduced the mortality rate from 17.5% to 12.2% in women, a 5.3...

...function of their high underlying mortality rates with myocardial infarction and less a failure of **thrombolysis**. This observation suggests that there are other factors, which **thrombolysis** cannot change, that may complicate the course of myocardial infarction in women, leading to high mortality rates. Factors that may be important include patient age, infarct size, reperfusion rates, **coronary flow rates**, persistent **ischemia**, concurrent illnesses, or ventricular remodeling. At present, these issues can only be addressed by multivariable...

...emphasizes the need for further research in this subset of patients. Since most trials of **thrombolytic** therapy have had an upper age limit of 70 or 75 years, fewer women than men have been enrolled in trials, and the value of **thrombolysis** in the very elderly remains somewhat controversial. Whether older age alone explains the relative underenrollment of women in **thrombolysis** trials is largely unexplored. One study has suggested that only 55% of eligible women compared...

...and men who were not treated. [26] These data coupled with the known efficacy of **thrombolysis** in both sexes suggest that gender bias may be playing a role in the selection of patients for **thrombolysis**. If so, the reduced mortality benefit in women is of particular concern, since one might...

...women were treated compared with higher-risk men.

At present, in women as in men, **thrombolysis** offers the greatest potential pharmacologic reduction in mortality during acute myocardial infarction and should not...

...research should be directed at examining current databases for gender-related differences in response to **thrombolysis** and ensuring the enrollment of adequate numbers of women (and elderly) in **thrombolysis** trials. A better understanding of why women have shown a reduced mortality benefit compared with...

...rate (1.8% vs 0.7%). Women had a higher incidence of intimal tears and **coronary** dissections than men. Female gender was an independent correlate of reduced success with **angioplasty**. [27] Two other studies examined gender differences in acute outcomes following **angioplasty** during the technique's early development, from 1980 to 1986 [28] and from 1979 to...

...1985. [29]

It has been suggested that the early use of 3.0-mm PTCA **balloons**, which were often oversized for women, predisposed them to complications with subsequent increased in-hospital...

...While acute clinical and angiographic success rates appear worse in women, long-term outcome and **restenosis** rates appeared at first to be better in women than in men. In the initial National Heart, Lung, and Blood Institute series (1982), after successful **angioplasty**, women had similar symptomatic improvement, higher event-free survival (80% vs 69%), and lower cumulative...

...months after PTCA but more frequent anginal symptoms in women. Numerous studies have reported lower **restenosis** rates in women than in men, [30-33] but this finding is far from universal...

...from the Cleveland Clinic [34,35] failed to identify gender as a risk factor for **restenosis** after PTCA. Furthermore, in a careful meta-analysis that reviewed 212 published reports on **angioplasty** and selected the 31 reports most likely to have reported unbiased results, gender was not found to be significantly correlated with post-PTCA **restenosis**. [36] Since most studies of **restenosis** are limited by incomplete angiographic follow-up, varying definitions of **restenosis**, and lack of multivariable analysis, the role of gender in the mechanism and rate of **restenosis** is uncertain but likely to be small.

Recently, the Cleveland Clinic has published preliminary data showing that, among patients who underwent **coronary** atherectomy, women had a higher complication rate than men. [37] By multivariable analysis, female gender...

...major complication rates (emergency surgery, death, or myocardial infarction) but more frequent minor complications (transfusion, **vascular** surgery, or non-Q-wave myocardial infarction) than men. [38] In recent reports of predictors of **restenosis** following intracoronary stenting and directional atherectomy, [39,40] gender was again not found to be...

...suggest that PTCA and the newer interventional devices carry higher procedural morbidity in women with **coronary** disease, few studies have adjusted these data for the baseline discrepancies in age, **coronary** size, and concurrent illness between men and women. Favorable long-term outcome suggests that percutaneous...

...option in women. The precise reason for women's increased morbidity at the time of **angioplasty** requires further study.

CORONARY ARTERY BYPASS GRAFTING

Several studies have examined by gender the preoperative characteristics, operative mortality rates, symptom relief, and long-term survival of patients undergoing **coronary artery** bypass surgery. The majority of studies have examined operative results from the 1970s and early 1980s and do not include more recent advances, such as internal mammary **artery** grafting, advances in cardioplegia, routine antiplatelet

therapy, and aggressive lipid-lowering therapy after surgery. Both...

...gender comparisons of the morbidity and mortality of CABG is unknown.

As in the early **angioplasty** studies, women who have undergone **coronary artery** bypass surgery have been older and have had more severe anginal symptoms and more unstable...

...women. In one study, when matched for preoperative angina severity and the number of diseased **blood vessels**, women and men had equal mortality rates. [46] In another study, when the authors adjusted...

...body surface area, gender was no longer an important risk factor for operative death. [44] **Coronary Artery** Surgery Study (CASS) investigators have found that mortality differences for men and women were primarily a result of differences in **coronary artery** size. [56] However, such corrections do not fully account for gender differences in outcome in...

...gender-related differences in referrals for CABG/PTCA in patients who had already had cardiac **catheterization**. [58,59] Thus, if gender bias exists, it is more likely in the referral of...
...62]

These studies suggest that outcome after CABG may depend more on patient size or **coronary** size and preoperative risk factors than on gender itself. Although women have a higher surgical...

...to CABG, their long-term survival is similar to that of men. With internal mammary **artery** grafting, more aggressive lipid-lowering and antiplatelet therapy, and aggressive use of a variety of...

...described will need to be reevaluated.

COMMENT

A critical issue in caring for women with **coronary artery** disease is knowledge of not just the operative risk of bypass surgery in women vs men but the medical risk for women. The **Coronary Artery** Surgery Study has yet to publish the results of medical vs surgical therapy in its...that take into account the existence of gender differences in the presentation and course of **coronary artery** disease are more likely to provide clinically valuable information.

Revascularization, whether medically through **thrombolysis**; mechanically through **angioplasty**, atherectomy, or intracoronary stents; or surgically, is an immensely important component of the treatment of **coronary artery** disease. As this review has suggested, gender differences exist in the course and treatment of patients with **coronary artery** disease. Compared with men, women receive less benefit from **thrombolysis** in myocardial infarction, suffer more acute complications from **coronary** interventions, and may have a greater early mortality rate with bypass surgery. Rational therapy at the present time would consist of aggressive **administration** of **thrombolysis** to women with acute myocardial infarction. Future studies should continue to address the issue of...

...dosages in the petite woman and/or the elderly woman who might thereby benefit from **thrombolysis** without increased complications as well as investigation of other factors that may predispose to hemorrhagic...

...and CABG are offered to women, such decisions should be individualized, based on the patients' **coronary** anatomy and preoperative risk factors, as in men, but also with full consideration of morbidity...

...revascularization with medical treatment in women alone.

There are many gaps in our knowledge of **coronary** heart disease in women. The existence of gender differences suggests the need for unique clinical...

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This article is one of...

DESCRIPTORS: **Coronary** heart disease...

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Thrombolysis : **choosing an agent following myocardial infarction.**

Kleiman, Neal S.; Pratt, Craig M.; Roberts, Robert
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Thrombolysis : **choosing an agent following myocardial infarction.**

TEXT:

Choosing an Agent Following Myocardial Infarction The most important decisions involved in **administering** a **thrombolytic** agent are whether to use one at all and, if so, how to use it...

...infarction. (In part 2 of this series [page 39], we discuss selection of patients for **thrombolytic** therapy.) Of lesser importance is the question of which **drug** to choose. To date, the Food and **Drug Administration** has approved three **intravenous drugs** for treatment of myocardial infarction: streptokinase (in May 1987); tissue plasminogen activator (TPA, in December...

... 1985, compared the efficacy of TPA and streptokinase in establishing reperfusion and patency of totally **occluded** infarct vessels. In the National Heart, Lung, and Blood Institute **Thrombolysis** in Myocardial Infarction Phase I trial (TIMI I), [1] patients treated within 7 hours of...

...million U over 1 hour, or TPA IV, 80 mg over 3 hours.

Patients underwent **coronary arteriography** before receiving the assigned drug and again following documentation of total **occlusion**. After

they received the drug, serial **coronary arteriograms** were taken for 90 minutes. At the end of that time, reperfusion (defined as restoration of antegrade **coronary arterial** flow in a totally **occluded** vessel) had occurred in 62% of patients receiving TPA and 31% of those receiving streptokinase...

...in the second study, the European Cooperative Study Group trial, [2] were similar. No pretreatment **arteriograms** were performed in this study, so patients with spontaneous reperfusion were included among those with open vessels. Patency rates (the percentage of **coronary arteries** that were not **occluded** at the time the **arteriogram** was taken) were 55% and 70% for those treated with streptokinase and TPA, respectively, and...
...equal frequency in both treatment groups in both studies. Most of the bleeding occurred at **catheterization** access sites.

More recently, data have become available concerning the use of **intravenous APSAC**. In one study, [4] reperfusion rates following administration of APSAC were compared with those...

...to 6 hours of onset.

In a study comparing IV APSAC with IV streptokinase, [5] **arterial** patency was present 90 minutes after initiation of treatment in 55% of patients receiving APSAC...

...dosage, you can expect a 70% patency rate 90 minutes after initiating treatment. Digital subtraction **arteriography** (Figure) reveals appearance of a **coronary** vessel that was completely blocked by a **thrombus** (A) before treatment and (B) after circulation was restored following administration of TPA.

For patients...

...but heparin (bolus followed by infusion) should be started within the first few hours after **administration** of these **drugs**.

Although revised TPA dosing schedules are under investigation, higher dosages of suspension culture TPA are...

...heparin and aspirin. Moreover, with inclusion of those patients who did not undergo a predischARGE **coronary arteriogram** because of death or a nonfatal reinfarction, the percentage of reocclusion in patients in both... 4% of patients receiving streptokinase and in 2% of those receiving conventional therapy. In the **Thrombolysis and Angioplasty** in Myocardial Infarction (TAMI) trial, [13] recurrent **ischemia** occurred in 18% of patients receiving **intravenous** TPA (without **angioplasty**); actual reocclusion of the infarct vessel occurred in fewer than half of these patients. In...

...OF DRUGS ON MORTALITY

So far, four trials large enough to study the effect of **thrombolysis** on mortality have been completed; two used streptokinase, [12,16] one used TPA, [17] and...

...this mortality figure, you can see the difficulty inherent in showing a difference between two **thrombolytic** drugs. If streptokinase were to lead to a 25% reduction in hospital mortality, comparison of...

...group that would have a mortality of only 7.4%. If TPA, the more potent **thrombolytic** drug, were to lead to a 25% greater reduction in mortality, such a study would...

...occurred with equal frequency in both groups, early reperfusion could not be assessed directly because **coronary** angiography was not performed until an average of 4 days after treatment. At that time...

...present with a large, life-threatening infarction that prompts the decision for treatment with a **thrombolytic drug**. Because of its clearance mechanism, TPA should be **administered** with extreme caution to patients having liver disease.

Potential for Anaphylaxis. Since streptokinase is a...

...to it. Severe allergic reactions are extremely rare, but anaphylaxis has been reported. Do not **administer** this **drug** (or its derivative, APSAC) to patients who have received it within the past 6 months or who have had a recent streptococcal infection.

Additional aspects. When choosing a **thrombolytic** drug, keep in mind several practical considerations. Since (to the best of our knowledge) the proximate cause of acute myocardial infarction is **occlusive** intracoronary **thrombus**, TPA would ...Obviously, if only one of the drugs is available, it should be used without question.

THROMBOLYTIC AGENTS OF THE FUTURE

Several other **thrombolytic** drugs are expected to become available within the next few years.

Urokinase. Urokinase is another...

...14] This was particularly true in those cases where reperfusion failed and emergency of "salvage" **angioplasty** was performed; a significantly lower incidence of reocclusion followed. The authors speculated that the cause...

...another nonfibrin-specific agent may prove useful in patients with large infarctions for whom emergency **catheterization** and **angioplasty** are contemplated. Additional trials are under way, treating acute myocardial infarction with IV urokinase, but...

...with TPA. A combination of these two agents in very low doses has produced high **perfusion rates** in the small number of patients treated thus far, with remarkably little depletion of systemic...

...by intrinsic inhibitors of fibrinolysis. In addition, construction of "targeted" hybrid molecules containing both a **thrombolytic** drug and an antibody to fibrin is being studied as one means of increasing the... specific sites in the coagulation cascade, the use of which may complement the action of **thrombolytic** drugs. These agents include specific inhibitors of **thrombin**, powerful platelet-inhibiting agents (**thromboxane** and serotonin inhibitors), and blockers of the receptors responsible for platelet aggregation. We anticipate that these will hasten the course of **thrombolysis** and limit the rates of reocclusion and reinfarction. Although a consensus has not yet developed concerning the optimal available agent, we have a steadily increasing armamentarium of both **thrombolytic** and adjunctive agents that have proved most effective in reducing the morbidity and mortality associated with acute myocardial infarction.

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...of medicine, section of cardiology, Baylor College of Medicine, and assistant director of the cardiac **catheterization** laboratory at The Methodist Hospital, Houston, Texas. Dr Pratt is associate professor of medicine and...

...DESCRIPTORS: **Thrombolytic** drugs

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**LOCALMED RECEIVES FDA APPROVAL TO MARKET THE INFUSASLEEVE CORONARY
 DRUG DELIVERY CATHETER**

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LOCALMED RECEIVES FDA APPROVAL TO MARKET THE INFUSASLEEVE
**CORONARY DRUG
 DELIVERY CATHETER**

PALO ALTO, CA., Oct. 26 /PRNewswire/ -- LocalMed, Inc., announced today that it has received FDA approval to market the Kaplan-Simpson InfusaSleeve(TM), a **catheter** which delivers medication directly to the **coronary artery** during **angioplasty**.

With more than a third of the world's 700,000 **angioplasty** patients requiring a second procedure within six months, the quest for a drug that prevents **restenosis** has been the industry's holy grail. Nearly fifty pharmaceutical and biotechnology firms are developing agents from simple heparin derivatives to high-tech antisense oligonucleotides in the hope that they will have some impact on this persistent problem. Available anti- **thrombotic** drugs like heparin, and direct **thrombin**

inhibitors now under investigation,

could also be very effective in reducing the risk of abrupt vessel closure in **angioplasty** after acute myocardial infarction. In all cases, though, the trick lies in **delivering** the **drug**

to the injured

segment of the **coronary artery**.

LocalMed believes it has the answer. Using its patented, over-the- **balloon** technology, the Palo Alto company has developed an infusion sleeve which tracks over virtually any **angioplasty balloon** and can deliver medication directly to the **angioplasty** site. The **InfusaSleeve** (TM) uses the existing **balloon** to position its **drug delivery** ports against the **artery** wall, permitting a precise fit within the **artery** and independent control of **drug infusion**

, which the

company believes is crucial for safe and effective local delivery.

This independent control is unique to LocalMed's approach and, if ongoing preclinical and clinical studies are any indication, they may be right. "Our preclinical trials demonstrated remarkable **drug delivery** efficiency with almost no injury," said Paul Goeld, LocalMed's CEO, "but our biggest advantages are flexibility and low cost. **Drugs** can be **infused** at virtually any pressure, **flow**

rate or

volume. It's safe, effective and easy to use." The company is currently planning a worldwide product launch.

Clinical use of the InfusaSleeve(TM) includes approximately fifty patients in Frankfurt, Germany and Milan, Italy. The device has been used in combination with most popular **angioplasty balloon**

catheters

and with three commercially available **coronary** stents. In addition, LocalMed is a collaborative partner in several investigations requiring intramural (**arterial** wall) delivery.

LocalMed is a private, venture-backed company. Its investors include Brentwood Associates, Burr, Egan, Deleage & Company, New Enterprise Associates, Three Arch Partners, OnSet Enterprise Associates, and Schroder Ventures.

The idea for the InfusaSleeve(TM) was developed by Aaron Kaplan, MD, while he was an interventional cardiologist at Stanford

University. Kaplan founded the company with the help of John Simpson and Thomas Fogarty, who have an enviable record of picking winners. LocalMed may be their biggest winner yet.

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LOCALMED RECEIVES FDA APPROVAL TO MARKET THE INFUSASLEEVE CORONARY DRUG DELIVERY CATHETER

CORONARY DRUG
DELIVERY CATHETER

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PRODUCT NAMES: 2834030 (Drug Delivery Systems); 3842242

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Medical Progress: Advances in Coronary Angioplasty (Review Article)

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TEXT

...The goal of therapy in patients with **coronary artery** disease is to alleviate symptoms of angina and reduce the risk of death or nonfatal myocardial infarction. Although **coronary angioplasty** immediately reduces anginal symptoms in almost all patients who undergo it, its use is associated...

...or nonfatal myocardial infarction in about 5 percent of patients (Ref. 1-8) and with **restenosis** requiring repeated **angioplasty** or bypass surgery in about 30 percent. (Ref. 3-6,9) Recently, several clinical trials have shown that the implantation of **coronary** stents (Ref. 5,6) or treatment with blockers of platelet glycoprotein IIb/IIIa receptors (Ref. 10-12) reduces the occurrence of acute complications and **restenosis** in patients undergoing **coronary angioplasty**. These new therapies have spread rapidly and have changed the practice of interventional cardiology remarkably...

...Advances in **coronary angioplasty** have not occurred in isolation. There have also been improvements in the medical and surgical treatment of **coronary artery** disease, along with new insights into the natural history of **coronary** atherosclerosis. An update on **coronary angioplasty** is thus incomplete without attention to the benefits of new medical and surgical therapies. The...

...Devices for **Coronary** Revascularization

The growth of interventional cardiovascular procedures has been staggering (Fig. 1). Almost 900,000 **coronary angioplasty** procedures were performed worldwide in 1995. (Ref. 14) Since 1994, the use of **balloon angioplasty** has leveled off, while the use of **coronary** stents has grown substantially. The number of stent-implantation procedures is expected to exceed that of conventional **balloon angioplasty** procedures by the year 2000. (Ref. 14)|*Figure 1.-Rate of Growth in the Use...

...rates for 1996 are estimates. Data are from Lemaitre et al. (Ref. 14)
).**FIGURE OMITTED**

Balloon Angioplasty

Balloon catheters are used as the sole devices in percutaneous transluminal **coronary angioplasty** (PTCA), or **balloon angioplasty**, and as adjunctive dilating devices in most other interventional procedures. Since 1994, **balloon catheters** have undergone technical refinements. The deflated profile of 3.0-mm **balloon catheters** has been reduced from 0.037 in. (0.94 mm) to about 0.030 in. (0.76 mm). Improvements in **catheter** design have been partially responsible for higher success rates in recent years despite the older age of the patients and the more frequent occurrence of unstable angina and multivessel **coronary artery** disease in patients undergoing PTCA than in the past (Table 1).|*Table 1.-Increasing Success...

...Although the efficacy of PTCA has improved, it does not consistently result in a large **lumen** in the dilated vessel. This is important, because **arteries** with larger **lumen** diameters have a lower risk of subsequent **restenosis** than incompletely dilated **arteries** (the observation being that 'bigger is better'). (Ref. 15) When oversized **balloons** are used to dilate **coronary** vessels, however, the risk of vessel dissection and **ischemic** complications increases. (Ref. 16) Thus, several approaches involving the removal of atheromatous tissue have been developed to overcome the limitations of PTCA.

Atherectomy and Laser Angioplasty

During directional **coronary** atherectomy, atherosclerotic tissue is extracted from the **coronary artery** with a cutting blade spinning at 5000 rpm in the tip of the atherectomy device. During excimer-laser **angioplasty**, light at a wavelength of 308 nm emitted from optical fibers

at the **catheter** tip vaporizes atheromatous tissue. Although directional atherectomy and excimer-laser **angioplasty** usually result in larger **lumen** diameters than PTCA, these new treatments have not reduced the rates of acute complications or **restenosis** after **coronary angioplasty**. (Ref. 3,4,17-19) Some investigators have attributed the failure of directional atherectomy to...

...the fact that conservative cutting techniques have produced only a moderate increase in the final **lumen** diameter. (Ref. 20...The failure of excimer-laser **angioplasty** to achieve better clinical outcomes than PTCA was also attributed to inadequate tissue removal, (Ref...

...Ref. 27) The incidence of dissection may be reduced by infusing saline through the guide **catheter** during excimer-laser **angioplasty**. (Ref. 28 ...

...Rotational atherectomy (Ref. 29,30) is another approach for removing atheromatous **plaque** from **coronary arteries**. This technique uses a diamond-studded burr spinning at about 180,000 rpm to excavate calcified or fibrotic **plaque**, allowing microscopic debris to embolize to the **coronary** capillary bed. No multicenter, randomized trials proving its superiority over PTCA have been reported. The Excimer Laser Rotational Atherectomy **Balloon Angioplasty** Comparison was a single-center study involving 615 patients who underwent rotational atherectomy, excimer-laser **angioplasty**, or PTCA. (Ref. 31) Although rotational atherectomy was associated with a higher short-term success rate than PTCA (90 percent vs. 80 percent), the rates of major **ischemic** complications or repeated revascularization were higher six months after treatment (46 percent vs. 37 percent). (Ref. 31)

Coronary Stenting

Coronary stents are fenestrated stainless-steel tubes that can be expanded by a **balloon** and provide a scaffold within **coronary arteries** to treat acute vessel dissection and reduce the risk of **restenosis**. Two designs are currently approved by the Food and Drug Administration for general use (Fig. 2).|*Figure 2.- **Coronary** Stents Approved for Use by the Food and Drug Administration .Panel A shows a stainless-steel, slotted-tube, Palmaz-Schatz stent. An unexpanded stent is shown at the top of the panel, followed by an unexpanded stent mounted on a **balloon catheter**, an expanded stent on a fully dilated **balloon**, and an expanded stent with its slotted-tube configuration after deflation and removal of the **balloon catheter**. Although this stent is approved for use in reducing **restenosis** in native **coronary arteries** 3.0 mm or more in diameter, it is also widely used for other indications, such as abrupt vessel closure. Panel B shows **balloon**-expanded, stainless-steel, flexible-coil Gianturco-Roubin stents in 12-mm and 20-mm lengths...

...Current Applications

Coronary stenting reduces the immediate need for bypass surgery for abrupt vessel closure during PTCA. (Ref...

...appropriate, because this problem is predominantly caused by mechanical disruption, such as vessel dissection or **plaque** extrusion, in almost 80 percent of cases and by **thrombus** in about 20 percent of cases. (Ref. 2,35,36) When stenting is used to treat **thrombus**-containing lesions, however, the risk of **ischemic** complications increases. (Ref. 37,38...

... **Coronary** stenting also reduces the likelihood of **restenosis** in particular groups of patients. Two multicenter, randomized trials showed that the incidence of **restenosis** was 25 to 30 percent lower after **coronary** stenting than after PTCA for new lesions in large native **coronary arteries** measuring 3.0 mm or more in diameter (Table 2). (Ref. 5,6,39) Late **restenosis** of **coronary** stents is rare. The **lumen** diameter of stented **arteries** did not decrease, according to serial angiographic observations made from six months to three years...

...The use of **coronary** stents has not been restricted to the prevention of **restenosis** or the treatment of abrupt vessel closure. This versatile therapy is commonly used on a provisional basis for residual narrowings or mild dissections after PTCA. **Coronary** stenting is used in high-risk

situations unlikely to be successfully managed with conventional PTCA. For example, **coronary** stents are used to treat **stenoses** of the left main **coronary artery** in patients who cannot undergo bypass surgery (Fig. 3), (Ref. 41) **stenoses** in diseased saphenous- vein grafts, (Ref. 42,43) and total **occlusions** recanalized with PTCA or laser **angioplasty**. (Ref. 44,45) |*Figure 3.-Emergency Stenting for Threatened Closure of the Left Main **Coronary Artery**. **Restenosis** developed in a 77-year-old man 11 months after the implantation of a slotted-tube stent within the proximal segment of the left anterior descending **coronary artery** (Panel A, arrows). Attempts to dilate the segment were complicated by the formation of a dissection involving the distal left main **coronary artery** (Panel B, arrow). The dissection impaired flow into the left anterior descending (Panel B, arrowhead) and left circumflex **coronary arteries** and caused widespread myocardial **ischemia** with hypotension. Additional slotted-tube stents were placed in the left main **coronary artery** (Panel C, arrow) and the proximal left anterior descending **artery** (Panel C, arrowhead) across the origin of the left circumflex **coronary artery**, relieving **ischemia** and hypotension. Bypass surgery was not recommended because of the excellent angiographic result and the increased risk of surgery in this patient, who had severe chronic **obstructive** pulmonary disease and chronic muscle weakness from previous Guillain-Barre syndrome. Clinical evaluation at seven...

...Subacute Thrombotic Occlusion of Coronary Stents

The chief limitation of **coronary** stenting is subacute **thrombotic occlusion**, which occurs in about 4 percent of patients within 2 to 14 days after stent...

...always results in a myocardial infarction or death. (Ref. 5,6,38,46-48) Subacute **thrombotic occlusion** after stent implantation is a more serious problem than complete vessel closure after PTCA. The...

...percent of patients but appears most commonly while the patient is still in the cardiac **catheterization** laboratory, where the problem can be treated. Moreover, only one third of patients with complete vessel closure after PTCA have major **ischemic** complications. (Ref. 2...

...Initial efforts to prevent stent-associated **thrombosis** involved an intensive anticoagulation regimen consisting of aspirin, dipyridamole, dextran, and heparin during stent implantation and warfarin after the procedure. When bleeding and stent-associated **thrombosis** occurred simultaneously in some patients receiving anticoagulation therapy, it became clear that this approach did not prevent **thrombosis**. Using **intravascular** ultrasound imaging, Colombo and colleagues (Ref. 49) showed that stents must be dilated after implantation with **balloons** at high pressures (up to 16 to 20 atmospheres). When stents are fully expanded, the risk of subacute **thrombotic occlusion** is low, even in patients who are not receiving anticoagulation therapy. (Ref. 49) Because high-pressure **balloon inflations** are used in most cases to expand **coronary** stents, **intravascular** ultrasound imaging may not be needed routinely to document full stent expansion. In a pooled analysis, stent-associated **thrombosis** occurred in only 33 of 2630 patients (1.3 percent) who did not receive anticoagulation therapy; and more than two thirds of all patients did not undergo **intravascular** ultrasound imaging. (Ref. 47...

...that activation of platelets, rather than the coagulation pathway, increases the risk of stent-associated **thrombosis**. This observation was the basis for a randomized trial comparing the combination of ticlopidine and...

...the anticoagulant phenprocoumon and aspirin. The former regimen resulted in lower rates of stent-associated **thrombosis** (0.8 percent vs. 5.4 percent, $P = 0.004$) and major hemorrhage (0.0...

...under way to determine whether alternative antithrombotic approaches reduce the risk of major complications of **coronary** -stent implantation as compared with PTCA...

...Innovations in Coronary Stents

New stent designs, such as the heparin-coated stent evaluated in the

Belgium-Netherlands...

...may have important clinical benefits. (Ref. 52) There were no instances of documented stent-associated **thrombosis** in 207 consecutive patients, among whom 2.0 percent died, 1.5 percent had myocardial...

...percent needed bypass surgery, 1.5 percent had stroke, and 8.9 percent underwent repeated **angioplasty** within seven months after stent implantation for stable angina. This finding suggests that use of...

...design, implantation technique, and antithrombotic therapy in selected patients could reduce the rate of subacute **thrombotic occlusion** seen with bare metallic stents and anticoagulation with warfarin (Table 2... likely to have important clinical consequences. For example, an experimental study found lower rates of **thrombosis** and **lumen** narrowing with the use of a stainless-steel, corrugated-ring stent than with a stainless...

... **Coronary Stenting and the Process of Restenosis**

New concepts of **restenosis** have emerged simultaneously with the widespread use of **coronary** stents. Early studies suggested that intimal proliferation is the predominant cause of narrowing of the **lumen** after **arterial** injury in animals with normal or elevated cholesterol levels. On the basis of the results...

...enrolling more than 13,000 patients have evaluated various drugs to block intimal proliferation after **coronary angioplasty**, but none of the drugs have produced consistently beneficial results. (Ref. 54...

...Recent studies have challenged the proliferation model of **restenosis**. Using immunohistochemical labeling of proliferative-cell nuclear antigen in **restenotic** lesions extracted with directional atherectomy, O'Brien and colleagues (Ref. 55) found only scanty evidence of cellular proliferation and no obvious temporal peak during a six-month period after **angioplasty**. Mintz and colleagues (Ref. 56,57) used serial **intravascular** ultrasound imaging after various **coronary** interventions to quantify the separate contributions of vessel-wall geometry, atherosclerotic **plaque**, and the vessel **lumen** to the process of **restenosis**. They found that intimal thickening accounted for about 30 percent of the loss in **lumen** diameter six months after **coronary** interventions, whereas shrinkage of the dilated segment, measured as a reduction in the cross-sectional...

...Current studies thus suggest that **restenosis** is predominantly influenced by **arterial** remodeling -- a process that consists of either an adaptive increase or a pathologic shrinkage of...

...the vessel (Fig. 4). Whereas adaptive remodeling has been identified in the course of human **coronary** atherosclerosis as a mechanism that delays the development of focal **stenoses** in the presence of enlarging atheromas, (Ref. 58) pathologic remodeling has been observed as a process that increases the encroachment of atheroma and neointima on the **arterial lumen**, as was observed initially in studies of **restenosis** in rabbits. (Ref. 59,60)|*Figure 4.-Possible Mechanisms of **Restenosis** after PTCA and **Coronary Stenting**. Serial **intravascular** ultrasound studies suggest that PTCA almost always disrupts **plaque** without reducing the total intimal area, frequently causes dissections that penetrate into the tunica media... ..enlarges the vessel, measured as the cross-sectional area subtended by the external elastic lamina. **Restenosis** is caused by pathologic **arterial** remodeling, characterized by shrinkage of the area circumscribed by the external elastic lamina, and to a lesser extent by neointimal thickening. **Coronary** stenting also enlarges the cross-sectional area of the vessel. The radial force of the...

... **Coronary** stenting reduces the incidence of **restenosis** because it produces large **lumens** (Ref. 15) and staves off pathologic remodeling. (Ref. 61) Serial **intravascular** ultrasound studies suggest that neointimal proliferation through the stent struts accounts for almost all the late loss in **lumen** diameter after **coronary** stenting, with almost no evidence

of vessel shrinkage or collapse of the stent (Fig. 4...

...New Antithrombotic Therapies for use during **Coronary Angioplasty**

In 1994 the mainstay of anticoagulation therapy during PTCA was the combination of aspirin (325...

...The extent of **arterial - thrombus** formation during **coronary angioplasty** depends on the degree of platelet activation on exposure to **thrombogenic** components of atheromatous **plaques** (Ref. 62) and changes in shear caused by **stenoses**. (Ref. 63) **Thrombin** is generated during **coronary angioplasty** (Ref. 64) and potentially activates platelets. (Ref. 65) Because heparin has several limitations as a **thrombin** inhibitor, including its requirement for cofactor antithrombin III and inhibition within platelet-rich **thrombi**, (Ref. 66) direct **thrombin** inhibitors have been developed as possible substitutes. Two multicenter studies (Ref. 67,68) evaluated the direct **thrombin** inhibitors hirudin and bivalirudin in patients undergoing PTCA for unstable angina and found that these agents were marginally better than heparin in preventing **ischemic** complications. The failure of direct **thrombin** inhibitors to show a striking advantage over heparin during **angioplasty** is now attributed to the multiplicity of pathways for platelet activation (Ref. 69) and the inability of these agents, unlike heparin, to block the generation of **thrombin**. (Ref. 67...

...the monoclonal antibody abciximab, or c7E3. In the Evaluation of Abciximab for the Prevention of **Ischemic** Complications (EPIC) study, (Ref. 10) 2099 patients undergoing PTCA or directional atherectomy for acute myocardial infarction, refractory unstable angina, or high-risk **coronary stenoses** were treated with heparin and aspirin and randomly assigned to additional treatment with placebo, a...

...treated with abciximab as a bolus and infusion had a significantly lower incidence of major **ischemic** complications or repeated revascularization than those given placebo. (Ref. 11) These favorable long-term effects were predominantly due to a reduced need for bypass surgery or repeated **angioplasty**, results consistent with a reduction in the incidence of clinical **restenosis**. |*Table 3.-Effectiveness of New Antithrombotic Approaches in **Coronary Angioplasty** *...TABLE OMITTED...

...Indications for abciximab therapy during **coronary angioplasty** are evolving. Although large clinical studies such as EPIC and EPILOG prove that blockade of platelet glycoprotein IIb/IIIa receptors is useful during **angioplasty**, these studies do not define the details of optimal patient selection. The greatest treatment benefit...

...to anticoagulation with heparin, acute myocardial infarction, or postinfarction angina. Abciximab is also useful during **angioplasty** when unstable angina is associated with angiographic evidence of **thrombus**. Other indications, such as pretreatment for patients with unstable angina awaiting **coronary angioplasty**, are currently being evaluated in clinical trials...

...non-antibody-based blockers of platelet glycoprotein IIb/IIIa receptor have also been evaluated during **angioplasty** in multicenter, randomized clinical trials (Table 3). In the study entitled ``Integrelin to Minimize Platelet Aggregation and Prevent **Coronary Thrombosis** II,`` (Ref. 70) which involved 4010 patients undergoing **angioplasty** or atherectomy, high doses of the cyclic heptapeptide Integrilin were associated with a lower incidence of major **ischemic** complications or emergency revascularization than placebo at 24 hours (9.3 percent vs. 7.0...

...may relate to the irreversibility of action of abciximab or its cross-reactivity with other **vascular** receptors.

Thrombolytic Therapy as Adjunctive Therapy

Thrombolytic agents have been evaluated in clinical trials of PTCA. In the **Thrombolysis and Angioplasty** in Unstable Angina Trial, (Ref. 72) 469 patients with angina at rest who were ...receive placebo or intracoronary urokinase. Urokinase resulted in a lower incidence of angiographic evidence of **thrombus** during **angioplasty** (13.8 percent vs.

18.0 percent), but in higher rates of abrupt vessel closure...

...percent vs. 4.3 percent, $P < 0.02$) and the combined end point of recurrent **ischemia**, myocardial infarction, or emergency bypass surgery (12.9 percent vs. 6.3 percent, $P < 0.02$). (Ref. 72) In the **Thrombolysis in Myocardial Ischemia (TIMI) IIIB** study, (Ref. 73) 1473 patients with unstable angina or non-Q-wave myocardial...

...These two studies suggest that **thrombolytic** therapy should not be used routinely during **angioplasty** for unstable angina. The deleterious effects of **thrombolytic** therapy in this setting may be caused by the platelet-activating actions of **thrombolytic** agents. (Ref. 74...

...Comparison of **Angioplasty** with Other Therapies

Choosing among medical therapy, **angioplasty**, and surgical treatments remains a difficult decision in the care of individual patients with **coronary artery** disease. Nonetheless, the results of several clinical trials allow general guidelines to be developed.

PTCA...

...PTCA has been compared with medical therapy for stable angina in two studies. In the **Angioplasty Compared with Medicine** study, (Ref. 75) patients with stable angina and single-vessel **coronary** disease were randomly assigned to treatment with PTCA or medical therapy. In the **Medicine, Angioplasty, or Surgery Study**, (Ref. 76) patients with stable angina and a **stenosis** in the proximal left anterior descending **artery** were randomly assigned to medical therapy, PTCA, or bypass surgery with the left internal thoracic **artery** (Table 4). Both studies suggested that PTCA provides more complete relief of angina than medical...

...of myocardial infarction or bypass surgery (Table 4).|*Table

4.-Comparison of Medical Therapy and **Coronary Angioplasty** in Patients with Stable Angina, Unstable Angina, or Non-Q-Wave Myocardial Infarction
*...TABLE OMITTED...

...with unstable angina or non-Q-wave myocardial infarction. An aggressive strategy of early cardiac **catheterization** with **angioplasty** was compared with a conservative strategy of medical therapy for patients presenting with **ischemic** pain at rest (Table 4). Although major complications occurred with similar frequencies in patients assigned...

...infarction (Table 5). A meta-analysis of several reports suggested that PTCA performed without antecedent **thrombolytic** therapy results in a lower risk of death or reinfarction than **thrombolytic** therapy. (Ref. 78) Whether PTCA can be used successfully in a broad range of settings...

...the Myocardial Infarction Triage and Intervention Registry showed nearly identical hospital mortality rates for direct **angioplasty** and **thrombolytic** therapy for acute myocardial infarction in 19 Seattle hospitals (5.5 percent vs. 5.6 percent). (Ref. 79)|*Table 5.-Comparison of Medical Therapy and **Coronary Angioplasty** in Patients with Acute Myocardial Infarction (MI) *...TABLE OMITTED...

...the results of clinical trials comparing PTCA with medical therapy suggest that the benefit of **angioplasty** depends on the severity and acuity of the clinical presentation. A gradient of risk extends across the spectrum of patients with **coronary artery** disease treated medically (Tables 4 and 5). At one end of the spectrum, patients with stable angina and mild **coronary artery** disease treated medically are at low risk of death or nonfatal myocardial infarction. In this...

...procedures. At the other end of the spectrum, patients with acute myocardial infarction treated with **thrombolytic** therapy have a risk of major complications such as reinfarction or stroke that may be reduced with early **angioplasty**. In the middle of the spectrum, patients with unstable angina treated medically have an intermediate risk of major **ischemic** complications. In this setting, PTCA provides symptomatic relief and stabilizes ...Several studies have compared PTCA with bypass surgery for patients with single-vessel or multivessel **coronary artery** disease. Despite the use of different protocols, these studies have yielded consistent results (Table 6). (Ref. 76,80-84) Major **ischemic**

complications, such as death or myocardial infarction, occur with similar frequencies one to five years after **angioplasty** or bypass surgery. The chief difference between the two strategies is the increased need for repeated revascularization procedures in patients who initially underwent PTCA. In the Bypass **Angioplasty** Revascularization Investigation (BARI), however, 69 percent of patients initially treated with **angioplasty** had not undergone bypass surgery five years later. (Ref. 81)|*Table 6.-Comparison of Surgical Therapy and **Coronary Angioplasty** ***TABLE OMITTED...

...Thus, patients with single-vessel or multivessel **coronary artery** disease who are good candidates for either **angioplasty** or bypass surgery can be reassured that both revascularization approaches are followed by equivalent rates of major **ischemic** complications. However, diabetic patients had higher rates of **restenosis** than patients without diabetes (Ref. 85) and significantly higher rates of survival five years after treatment with bypass surgery than with **coronary angioplasty** in BARI (81 percent vs. 65 percent, $P = 0.003$). (Ref. 81) In the absence of other factors affecting surgical risk, the decision about surgical therapy or **angioplasty** can be based on personal preference, weighing the invasive nature of bypass surgery against the likelihood of repeated procedures after **angioplasty**.

Relation between Severity of **Stenosis** and Clinical Outcome

Why have **coronary** interventional therapies not improved the natural history of **coronary artery** disease more substantially? Although it seems intuitive that the risk of complications from **coronary** atherosclerosis should correlate with the angiographic severity of individual **coronary - artery** lesions, several studies have discounted this notion...

...of lesions and clinical events. In the Familial Atherosclerosis Treatment Study, (Ref. 86) men with **coronary artery** disease were randomly assigned to treatment with placebo or one of two lipid-lowering regimens...

...despite a slight 0.3 and 1.1 percentage-point reduction in the severity of **stenosis** in the two groups receiving active treatment. Myocardial infarction occurred in 19 percent of the...

...Although lipid-lowering therapy does not reduce the likelihood of **restenosis** six months after **coronary angioplasty**, (Ref. 87) it does reduce the likelihood of angina or myocardial infarction and the need...

...with hypercholesterolemia. Intensive lipid-lowering therapy was associated with a 34 percent reduction in major **ischemic** events and a 37 percent reduction in the rate of bypass surgery or PTCA in...

...Ref. 89) The mechanism for this benefit has been attributed to minor regression of fixed **stenoses**, generalized improvement in endothelial function, and a decreased risk of **plaque** rupture during lipid-lowering therapy. (Ref. 90,91...

...The dissociation between the severity of **stenosis** and the risk of major **ischemic** complications has been confirmed in several other settings. Ambrose and colleagues (Ref. 92) compared **coronary stenoses** in 38 patients who had myocardial infarction in the interval between two **coronary arteriographic** studies. The lesions seen on the initial angiogram that were later responsible for Q-wave myocardial infarctions had a mean **stenosis** of only 34 percent. In a similar study, Little and colleagues (Ref. 93) reviewed serial **coronary arteriograms** in 42 consecutive patients before and after acute myocardial infarction. In 29 patients, a new total **occlusion** was observed on the second **arteriogram**. Among these 29 patients, 66 percent of the culprit lesions were associated with **stenoses** of less than 50 percent on the initial **arteriogram**.

...

...Thus, the emphasis on the severity of **stenosis** wrongly reinforces the simplistic notion that angiographically severe lesions are associated with

an increased risk of death or myocardial infarction. Whereas **coronary angioplasty** is appropriate to reduce symptoms in patients with angina and angiographically severe lesions, because these are frequently associated with decreased **coronary** flow reserve and myocardial **ischemia**, (Ref. 94) this therapy cannot be expected to eliminate all subsequent cardiovascular risk, because **coronary** atherosclerosis is a diffuse process (Ref. 95) and angiographically mild **stenoses** not conventionally targeted for treatment are inherently more likely than severe lesions to cause myocardial...

...Although **coronary arteriography** provides a high-resolution image of the **coronary lumen**, it may not be ideal for evaluating the severity of **coronary** atherosclerosis -- a disease of the vessel wall. Additional information about **coronary** atherosclerosis may be obtained with new imaging techniques and physiologic measurements. **Intravascular** ultrasound imaging provides anatomical details of the vessel wall and atherosclerotic **plaque** that are helpful in some **coronary** interventions. (Ref. 96) Several studies are under way to determine whether ultrasound findings are associated...

...PTCA has been a major therapeutic advance because it relieves angina in patients with severe **stenoses**. **Coronary** stenting has revolutionized the practice of interventional cardiology by partially overcoming some of the limitations of **coronary angioplasty**, such as abrupt vessel closure and **restenosis**. Ongoing studies of stent coatings and optimal antithrombotic therapies may improve the success of **coronary** -stent implantation, further reduce the rate of **restenosis**, and lower the risk of death or nonfatal myocardial infarction...

...Platelet glycoprotein IIb/IIIa-receptor blockers have reduced the rate of acute complications of **coronary angioplasty** in high-risk settings and may have persistent benefits after discharge from the hospital. Further ...

...evaluate the role of these agents as treatment for unstable angina or myocardial infarction before **coronary angioplasty** is performed...

...In general, the treatment effect of mechanical **coronary** interventions is confined to discrete **coronary - artery** segments, whereas the pathologic process of **coronary** atherosclerosis is diffuse. **Coronary** interventional therapy should thus be viewed as part of a comprehensive strategy involving other treatments...

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A Comparison of Hirudin with Heparin in the Prevention of Restenosis after Coronary Angioplasty (Original Articles)

Serruys, Patrick W.; Herrman, Jean-Paul R.; Simon, Rudiger; Rutsch, Wolfgang; Bode, Christoph; Laarman, Gert-Jan; van Dijk, Rene; van den Bos, Arjan A.; Umans, Victor A.W.M.; Fox, Keith A.A.; Close, Philip; Deckers, Jaap W.; the Helvetica Investigators.

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Abstract

Background: The likelihood of **restenosis** is a major limitation of **coronary angioplasty**. We studied whether hirudin, a highly selective inhibitor of **thrombin** with irreversible effects, would prevent **restenosis** after **angioplasty**. We compared two regimens of recombinant

hirudin with heparin.

Methods: We randomly assigned 1141 patients with unstable angina who were scheduled for **angioplasty** to receive one of three treatments: (1) a bolus dose of 10,000 IU of heparin followed by an **intravenous** infusion of heparin for 24 hours and subcutaneous placebo twice daily for three days (382 patients), (2) a bolus dose of 40 mg of hirudin followed by an **intravenous** infusion of hirudin for 24 hours and subcutaneous placebo twice daily for three days (381 patients), or (3) the same hirudin regimen except that 40 mg of hirudin was given subcutaneously instead of placebo twice daily for three days (378 patients). The primary end point was event-free survival at seven months. Other end points were early cardiac events (within 96 hours), bleeding and other complications of the study treatment, and angiographic measurements of **coronary** diameter at six months of follow-up.

Results: At seven months, event-free survival was 67.3 percent in the group receiving heparin, 63.5 percent in the group receiving **intravenous** hirudin, and 68.0 percent in the group receiving both **intravenous** and subcutaneous hirudin ($P = 0.61$). However, the administration of hirudin was associated with a significant reduction in early cardiac events, which occurred in 11.0, 7.9, and 5.6 percent of patients in the respective groups (combined relative risk with hirudin, 0.61; 95 percent confidence interval, 0.41 to 0.90; $P = 0.023$). The mean minimal luminal diameters in the respective groups on follow-up angiography at six months were 1.54, 1.47, and 1.56 mm ($P = 0.08$).

Conclusions: Although significantly fewer early cardiac events occurred with hirudin than with heparin, hirudin had no apparent benefit with longer-term follow-up. (N Engl J Med 1995;333:757-63.)

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A Comparison of Hirudin with Heparin in the Prevention of Restenosis after Coronary Angioplasty (Original Articles) 1995 ;

Abstract

Background: The likelihood of **restenosis** is a major limitation of **coronary angioplasty** . We studied whether hirudin, a highly selective inhibitor of **thrombin** with irreversible effects, would prevent **restenosis** after **angioplasty** . We compared two regimens of recombinant

hirudin with heparin.

Methods: We randomly assigned 1141 patients with unstable angina who were scheduled for **angioplasty** to receive one of three treatments: (1) a bolus dose of 10,000 IU of heparin followed by an **intravenous** infusion of heparin for 24 hours and subcutaneous placebo twice daily for three days (382 patients), (2) a bolus dose of 40 mg of hirudin followed by an **intravenous** infusion of hirudin for 24 hours and subcutaneous placebo twice daily for three days (381...

...within 96 hours), bleeding and other complications of the study treatment, and angiographic measurements of **coronary** diameter at six months of follow-up.

Results: At seven months, event-free survival was 67.3 percent in the group receiving heparin, 63.5 percent in the group receiving **intravenous** hirudin, and 68.0 percent in the group receiving both **intravenous** and subcutaneous hirudin ($P = 0.61$). However, the administration of hirudin was associated with a...

TEXT

...Platelet aggregation, the generation of **thrombin**, and the release of growth factors at the site of **angioplasty** have all been implicated in the process of **restenosis**. (Ref. 1,2) Consequently, anticoagulants, antiplatelet agents, and specific antithrombin agents have been considered for the prevention of **restenosis**. (Ref. 3) **Thrombin** is the most potent platelet activator known, stimulating the production of platelet-derived growth factor and the secretion of prostacyclin, platelet-activating factor, and plasminogen-activator inhibitor. **Thrombin** has apparent mitogenic effects on lymphocytes and **vascular** smooth-muscle cells. (Ref. 4,5...

...compound originally extracted from the salivary gland of the leech, is a specific inhibitor of **thrombin**. The advantage of hirudin over other serine protease inhibitors is its potency in irreversibly blocking **thrombin** at multiple sites without the need for circulating antithrombin III. (Ref. 6) Because of the small size of the hirudin molecule, this substance can inhibit clot-bound **thrombin** and restrict the further formation of **thrombus**. (Ref. 7...

...Hirudin has reduced the deposition of platelets after **vascular** injury in pigs (Ref. 8) and lowered the rate of **restenosis** in hypercholesterolemic rabbits, (Ref. 9) providing a rationale for its use in patients undergoing **angioplasty**. In this trial we evaluated whether the inhibition of **thrombin** with hirudin as compared with heparin improved event-free survival in patients undergoing **coronary angioplasty**.

...

...Methods

Study Population

Patients with unstable angina and one or more clinically important new or **restenotic coronary** narrowings suitable for treatment with percutaneous transluminal **coronary angioplasty** were eligible for the study. From September 1992 through May 1993, 1154 patients from various...

...Ref. 11) The criteria for exclusion from the study were stable angina, a planned multistage **angioplasty** procedure or stent implantation, myocardial infarction occurring within the preceding two weeks, hypertension, diabetic retinopathy...

...The patients received one of the following three treatments: heparin (an **intravenous** bolus injection of 10,000 IU of heparin followed by a continuous **intravenous** infusion of 15 IU of heparin per kilogram of body weight per hour for 24 hours, with placebo given subcutaneously twice daily for three consecutive days), **intravenous** hirudin (an **intravenous** bolus injection of 40 mg of hirudin followed by a continuous **intravenous** infusion of 0.2 mg of hirudin per kilogram per hour for 24 hours, with placebo given subcutaneously twice daily for three consecutive days), or **intravenous** and subcutaneous hirudin (an **intravenous** bolus injection of 40 mg of hirudin followed by a continuous **intravenous** infusion of 0.2 mg

of hirudin per kilogram per hour for 24 hours, with 40 mg of hirudin given subcutaneously twice daily for three consecutive days). If the **angioplasty** lasted more than one hour, an additional bolus dose of 5000 IU of heparin could day of **angioplasty**, and this treatment was continued for at least 14 days.

Criteria for Evaluation

Efficacy

The primary end point was event-free survival 30 weeks after **angioplasty** -- that is, the absence of death, nonfatal myocardial infarction, **coronary - artery** bypass grafting or the use of a ``bailout'' procedure (e.g., stenting), or second **angioplasty** at previously dilated sites. Myocardial infarction was diagnosed on the basis of new Q waves...

...concomitant increase in the MB fraction. If a stent was implanted electively after the initial **angioplasty** (i.e., not as part of a bailout procedure), the implantation was considered equivalent to a second **angioplasty**. Second **angioplasty** or bypass surgery needed to be preceded by typical anginal symptoms or, if there were atypical anginal symptoms, by electrocardiographic evidence of myocardial **ischemia** at rest or during exercise and an angiographically determined **stenosis** greater than 50 percent by visual inspection...

...a ranked series of clinical events that included death from cardiac causes, nonfatal myocardial infarction, **coronary - artery** bypass grafting (or the use of a bailout procedure), second **angioplasty**, and anginal status (according to the classification system of the Canadian Cardiovascular Society (Ref. 10...

...the study medication; the minimal luminal diameter of the dilated sites as measured by quantitative **coronary** angiography at the 26-week follow-up evaluation; and any change in the minimal luminal diameter of dilated sites from immediately after **angioplasty** to follow-up angiography at 26 weeks
...

...bleeding that did not meet these criteria.

Angiography and Assessment of Coagulation

For each patient, **coronary** angiograms were obtained in a standardized fashion immediately before and immediately after **angioplasty**, and at the six-month follow-up evaluation. The angiograms were analyzed in a core...

...Blood samples for the measurement of coagulation were obtained at regular intervals before and after **angioplasty**. Blood samples for the determination of activated partial- **thromboplastin** times and levels of prothrombin fragment F(sub 1+2) (a measure of the generation of **thrombin**) were obtained separately by atraumatic venipuncture and were analyzed in a central laboratory.

Statistical Analysis...

...were compared in an intention-to-treat analysis, which included all randomized patients in whom **coronary angioplasty** was attempted. Patients in whom no **angioplasty** was attempted (i.e., those whose indication for **angioplasty** changed or disappeared) were excluded from the analysis. A successful procedure was defined as one in which the **stenosis** was reduced by more than half; in the case of a failed recanalization of a total **occlusion**, the second lesion treated was considered to be the first site of **angioplasty**.

...

...The minimal luminal diameters at the dilated sites 26 weeks after **angioplasty** were compared by analysis of variance, with the mean value for all sites used in cases of **angioplasty** at multiple sites. All reported P values are two-tailed. Whenever possible, estimates of the...of reasons. Thirteen patients were not included in the intention-to-treat analysis because no **angioplasty** was attempted. Among the remaining 1141 patients in whom **angioplasty** was attempted, 382 were randomly assigned to heparin, 381 to **intravenous** hirudin, and 378 to **intravenous** and subcutaneous hirudin. **Angioplasty** was successful in 91.7 percent, and the results of angiographic follow-up were available...

...The characteristics of the three groups were similar. Almost one third of the patients received **intravenous** heparin before randomization because of the severity of their unstable angina. | *Table 1.-Base-Line...

...TABLE OMITTED**

Efficacy

Among the study patients, 125 patients assigned to heparin, 139 assigned to **intravenous** hirudin, and 121 assigned to **intravenous** and subcutaneous hirudin reached a primary end point. The distribution of patients free of events...

...The incidence of early events (those occurring in the first 96 hours after **angioplasty**) is also shown in Table 2. Forty-two patients assigned to heparin, 30 patients assigned to **intravenous** hirudin, and 21 patients assigned to **intravenous** and subcutaneous hirudin had such events (relative risk in the combined hirudin groups, 0.61...

...6 percent in the heparin group, as compared with 5.3 percent among patients receiving **intravenous** hirudin and 12.3 percent among patients receiving **intravenous** and subcutaneous hirudin (combined relative risk with hirudin, 0.41; 95 percent confidence interval, 0...

...three myocardial infarctions and one nonhemorrhagic cerebrovascular accident resulted in death. In the group receiving **intravenous** hirudin, there was one sudden death. In the group receiving **intravenous** and subcutaneous hirudin, five patients had fatal myocardial infarctions. In this group there were also Base-line angiographic measurements and gains in luminal diameter achieved by **angioplasty** were similar in the three groups (Table 3). The changes in minimal luminal diameter from immediately after **angioplasty** to follow-up were also similar (Fig. 2). | *Table 3.-Mean (+/- SD) Angiographic Measurements in...

...OMITTED** | *FIGURE 2.-Cumulative Distribution of the Reduction in Minimal Luminal Diameter from Immediately after **Angioplasty** to Follow-up at Seven Months *. **FIGURE OMITTED**

Safety

The incidence of bleeding complications is...

...or minor bleeding were observed among groups. There were three cerebrovascular accidents. One patient receiving **intravenous** and subcutaneous hirudin was readmitted to the hospital with hemiplegia 14 hours after the final...

...condition, the patient died six days after the start of the study treatment. Two intracerebral **thrombotic** events were observed. One patient (receiving **intravenous** and subcutaneous hirudin), who presented with symptoms of neurologic deficit one day after discharge from...

...at the time of screening to 1.4 nmol per liter in the group receiving **intravenous** hirudin, and from 1.0 to 1.3 nmol per liter in the group receiving **intravenous** and subcutaneous hirudin), whereas in the heparin group the levels were slightly reduced (to 0...

...three groups. | *Figure 3.-Levels of Prothrombin Fragment F(sub 1+2) and Activated Partial- **Thromboplastin** Times in the Three Study Groups at Various Times before and after **Angioplasty**. A denotes the group receiving heparin, B the group receiving **intravenous** hirudin, and C the group receiving **intravenous** and subcutaneous hirudin. The solid area inside each box indicates the median value, and the...

...sub 1+2) (1.4 nmol per liter). Heparin tended to control the generation of **thrombin** better than hirudin both immediately after **angioplasty** and six hours after the start of the infusion. In the right-hand panel, the activated partial- **thromboplastin** time was measured up to a maximum of 150 seconds. Over the first 24 hours...

...Measurements of activated partial- **thromboplastin** time (Fig. 3) were higher at the end of the procedure in the subjects receiving...

...hours. The infusion of hirudin resulted in a more stable effect. Slightly prolonged activated partial- **thromboplastin** times were observed at 96 hours after **angioplasty** in the group receiving **intravenous** and subcutaneous hirudin...

...impressive reductions in the rate of major cardiac events in the first 96 hours after **angioplasty** as compared with heparin, the primary goal of this trial, a reduction in the rate...

...other trials using specific antiplatelet drugs have demonstrated beneficial effects on the acute complications of **coronary angioplasty** without favorably influencing long-term clinical outcomes. (Ref. 18-20) These findings differ from the results of the Evaluation of 7E3 for the Prevention of **Ischemic** Complications (EPIC) trial, (Ref. 21,22) in which the glycoprotein IIb/IIIa receptor was presumed...Primarily, the dosage was based on safety data obtained in healthy volunteers, stable patients undergoing **angioplasty**, and patients undergoing orthopedic surgery. (Ref. 23-25) However, the results of assays of prothrombin fragment F(sub 1+2) immediately after **angioplasty** suggest that the generation of **thrombin** was not satisfactorily inhibited in either hirudin group, whereas the dosage of heparin we used...

...at six hours. It can be inferred from these data that the adjustment in the **infusion rate** -- from 0.16 mg per kilogram per hour in the pilot study of patients with...

...hour in the current trial of patients with unstable angina and presumably higher levels of **thrombin** generation -- was too cautious a change in dosage. Zoldhelyi et al. (Ref. 26) recently reported failing to block the generation of **thrombin** in their patients despite the presence of a 10,000-fold molar excess of free hirudin over the amount bound in complexes with **thrombin**. **Infusion rates** of hirudin in experiments with animals were as much as five times higher than those...

...volunteers at a dose of 0.5 mg per kilogram twice daily, the activated partial- **thromboplastin** time 12 hours after the first injection was subtherapeutic, (Ref. 23) and it may be...

...paradox by which the early outcome is improved although there is less appropriate control of **thrombin** may be that the dosage used was not sufficient to produce an adequate level of anticoagulation, but was sufficient to limit the **thrombin**-mediated aggregation and activation of platelets, causing effects similar to those observed over the short...

...of treatment is unknown, even in animal models. Conflicting findings about the time course of **thrombogenicity** in the injured vessel wall have been reported. (Ref. 27-30) In this study we...

...the duration of hirudin administration and logistic considerations of the trial was presumably achieved by **administering** the **drug** **intravenously** for 24 hours and subcutaneously for three consecutive days

...A clearly beneficial effect of hirudin on platelet aggregation and **thrombus** formation was indicated by the prevention of acute **ischemic** events early after **angioplasty**. The failure of hirudin in this trial to alter longer-term outcomes indicates either that **thrombin** generation and **thrombus** formation in the period immediately after **angioplasty** may be less important in the process of **restenosis** than was previously believed or that complete reversal of the **thrombogenicity** of the injured vessel wall was not achieved or requires more time. Whether the large...

...participated in the Helvetica (Hirudin in a European Trial versus Heparin in the Prevention of **Restenosis** after PTCA) trial. The number of patients enrolled at each center is given in parentheses, followed by an asterisk when all patients in the cardiac **catheterization** laboratory at a center were screened and the results entered in a logbook...of Clinical Epidemiology and Biostatistics, Cardialysis -- R. Melkert. Hemostasis Core Laboratory (Department of Hemostasis and **Thrombosis**, Academic Medical

Center, Amsterdam) -- H. Buller. Safety Committee: K. Fox (chairman), H. Buller, D. Chamberlain...

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**Medical Progress: Percutaneous Transluminal Coronary Angioplasty
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* * USE FORMAT 9 FOR FULL TEXT OF ARTICLE * *

Medical Progress: Percutaneous Transluminal Coronary Angioplasty
(Review Article)
1994 ;

TEXT

...The nonsurgical treatment of **arteries** narrowed by atherosclerosis was introduced in 1964, when Dotter and Judkins performed transluminal **angioplasty** of femoral **arterial stenoses** (Ref. 1). In the 1970s, Gruntzig modified the dilation **catheter** to allow its use in **coronary arteries**, (Ref. 2) and in September 1977 he performed the first percutaneous transluminal **coronary angioplasty** (PTCA) in a patient. PTCA has since been used in many patients with stable angina...

...angina, or acute myocardial infarction. Its use was initially limited to the treatment of discrete **stenoses** in proximal segments of a **coronary artery**, but improvements in equipment and technique have led to its use in patients with **stenoses** that are more complex or located in distal **arterial** segments and in patients at relatively high risk for complications (Ref. 3). Despite the wider...

...Mechanisms of **Arterial** Dilation

The mechanisms by which PTCA increases the size of the **arterial lumen** have been studied in animals and cadavers. **Balloon**-induced barotrauma causes endothelial denudation; cracking, splitting, and disruption of the atherosclerotic **plaque**; dehiscence of the intima and **plaque** from the underlying media; and stretching or tearing of the media and adventitia, with resultant aneurysmal dilatation (Fig. 1) (Ref. 5,6). **Plaque** fissuring, medial and adventitial stretching, and separation of the atheroma from the underlying media account...

...dissection (Ref. 7,8). Intracoronary ultrasound imaging, which provides a cross-sectional view of the **artery** from within the **lumen**, has provided in vivo confirmation of these morphologic findings after PTCA. With ultrasound imaging, dissection of the **arterial** wall -- at times extensive -- is detected in 50 to 80 percent of patients who have...

...morphologic alterations open up new pathways for blood flow, leading to an increased luminal size. **Balloon inflation** may be deleterious, however, causing **plaque** hemorrhage, extensive dissection (resulting in luminal compromise), platelet deposition, or **thrombus** formation (Ref. 6,11). Aspirin and heparin are administered to reduce the incidence of platelet deposition and **thrombosis**, respectively. *Figure 1.-Cross Section of a **Coronary Artery** before (Left) and after (Right) Successful PTCA. After the **balloon** has been **inflated**, the **lumen** is enlarged by fissuring of the **plaque** (1), separation of the **plaque** from the underlying layers (2), and stretching of the less diseased portion of the **artery** (3) *. **FIGURE OMITTED...

...In the weeks after successful PTCA, favorable remodeling of the disrupted **plaque** and endothelialization at the sites of intimal injury result in an increased luminal size. Angiographic...

...mg per day) is given before and after PTCA to prevent abrupt closure of the **artery** being dilated (Ref. 13,14). Dipyridamole provides no additional benefit (Ref. 15). For the patient...

...obtain the maximal antiplatelet effect. Heparin (typically 10,000 to 15,000 units) is administered **intravenously** during the procedure to

decrease the incidence of **coronary arterial thrombosis** (Ref. 17,18). The adequacy of anticoagulation is monitored in the **catheterization** laboratory by measurement of the activated clotting time. Nitroglycerin (sublingual, intracoronary, or both) and, at times, a calcium antagonist are given to prevent **coronary vasospasm** (Ref. 19) and to diminish **ischemia** during inflation of the **balloon** (by reducing myocardial oxygen demand while the **coronary** flow is interrupted).

The Procedure

Successful PTCA requires a skilled operator and competent cardiothoracic surgical support (Ref. 20). High-resolution fluoroscopic equipment is needed for adequate visualization of the **coronary arteries**. The procedure is performed with a special apparatus consisting of a large-**lumen** guide **catheter**, a flexible guide wire, and a **balloon catheter**. **Vascular** access is usually attained through the femoral **artery**, where a sheath is introduced with the use of local anesthesia. A 6- to 9-French guide **catheter** (2 to 3 mm in diameter) is advanced through the sheath to the ostium of the **coronary artery** to be dilated (Fig. 2A). The guide **catheter** is stiffer than the **catheters** used for diagnostic angiography, and it has a larger internal diameter to permit the passage of radiographic contrast material and visualization of the **artery** when the guide wire and **balloon catheter** are within the guide **catheter**. *Figure 2.-Procedure Used In PTCA. The guide **catheter** is introduced through a femoral **arterial** sheath and advanced to the ostium of the diseased **coronary artery** (Panel A). The guide wire is advanced through the central **lumen** of the **balloon catheter** into the diseased **artery** and across the **stenosis** (Panel B). The **balloon** is slid forward over the guide wire, positioned adjacent to the **stenosis**, and **inflated** (Panel C). After one or more **inflations**, the guide wire and **balloon catheter** are removed, and a final angiogram is obtained (Panel D) *. **FIGURE OMITTED...

...With the guide **catheter** positioned in the **coronary** ostium, angiography of the diseased **artery** is performed to visualize the **stenosis** and the **arterial** segments proximal and distal to it. The flexible guide wire (0.25 to 0.46 mm in diameter) is advanced through the guide **catheter**, navigated across the **stenosis**, and positioned in the distal **arterial** segment (Fig. 2B). The guide wire is navigated by rotating and advancing its angulated tip. With the guide wire across the **stenosis**, the deflated **balloon catheter** is advanced over the wire and positioned at the **stenosis**. The positions of the guide wire and **balloon catheter** are confirmed periodically by visualization of the **artery** as contrast material is injected through the guide **catheter**. Once positioned, the **balloon** is usually **inflated** for one to two minutes at 3 to 8 atmospheres of pressure with a mixture of saline and contrast material, so that the **inflation** can be visualized fluoroscopically (Fig. 2C). Occasionally, other **inflation** variables are used. Many patients have angina, electrocardiographic evidence of **ischemia**, or both during **inflation** of the **balloon**, since the **coronary artery** is temporarily **occluded**. If the **stenosis** is adequately dilated, the guide wire and **balloon catheter** are removed. If the dilation is not adequate, the guide wire remains across the **stenosis**, and the **balloon catheter** may be replaced by a larger one. When the **inflation** has been completed, a final angiogram is obtained to confirm that the result is satisfactory and that other segments of the **artery**, including branches, have not been compromised (Fig. 2D).

Management after PTCA

The patient is observed...

...to eight hours after PTCA, while the anticoagulant effect of the heparin subsides. The femoral **arterial** sheath is then removed, and hemostasis is achieved by compression of the puncture site. The...

...remains in bed for 8 to 24 hours. If there is angiographic evidence of extensive **coronary arterial** dissection or **thrombosis**, some operators continue the heparin for 12 to 24 hours (Ref. 18). If the procedure...

...Efficacy of the Procedure

With modern equipment, PTCA of a nonoccluded **coronary artery** is successful in about 90 percent of patients, (Ref. 3,22-24) with success

defined...

...on the post-PTCA angiogram. In 10 percent of patients, PTCA is unsuccessful because the **stenosis** cannot be crossed with either the guide wire or the **balloon catheter**, the **stenosis** is not adequately dilated despite the use of a **balloon** of appropriate size, or the vessel abruptly **occludes** (abrupt closure). PTCA has a lower success rate with **stenoses** that are long, eccentric, angulated, calcified, located at the ostium or the site of a branch point, or associated with intraluminal **thrombus** (Ref. 20). The success rate is lower in patients with unstable angina or advanced age...

...PTCA has a lower initial success rate (65 to 70 percent) in patients with chronically **occluded arteries** than in those with narrowed **arteries**, since it may be difficult to manipulate the guide wire through an **occluded** region. In some cases, the guide wire can be gently advanced through an **occluding thrombus**, presumably because it is incompletely organized. In addition, the incidence of **restenosis** is higher after PTCA of an **occluded artery** (Ref. 26,27). Unlike **restenosis** after PTCA of a narrowed **artery**, **restenosis** after PTCA of an **occluded artery** is manifested as a recurrent **occlusion** in about one third of patients (Ref. 28). PTCA of **occluded arteries** is most likely to be successful in vessels that have **occluded** recently (within one to three months) and in those in which the **occlusion** is short, tapered, not calcified, and not bridged by collateral vessels (Ref. 27,29,30...).

...In patients with recurrent angina after bypass surgery, PTCA of narrowed saphenous- **vein** grafts is often considered, since the perioperative mortality associated with a second bypass operation is higher than that associated with the initial operation (Ref. 31). Among patients with properly selected **vein** grafts, the success rate and frequency of acute complications are similar to those among patients with diseased native **arteries**, but the incidence of **restenosis** and late events (myocardial infarction, additional bypass surgery, or death) is higher in patients with diseased **vein** grafts (Ref. 32-34). Although the rate of **restenosis** in saphenous- **vein** grafts may be reduced by the placement of a stent, (Ref. 35) direct comparisons of this procedure with PTCA alone are lacking. PTCA of a **vein** graft is most likely to be successful in a narrowed graft implanted less than three years earlier, in which the **stenosis** is not located near the ostium and is focal rather than diffuse (Ref. 32,33...).

...should be reserved for patients with angina or objective evidence of spontaneous or provokable myocardial **ischemia**.

Stable Angina on Exertion

PTCA provides effective relief of stable angina in most patients with single-vessel **coronary artery** disease (Ref. 22,24). In those with multivessel disease, the procedure is less likely to result in complete, long-term alleviation of angina, (Ref. 23,36) since the risk of **restenosis** is increased when more than one **stenosis** is dilated in a patient, and revascularization is incomplete when only "culprit" **stenoses** -- those deemed most likely to be responsible for symptoms -- are dilated (Ref. 37,38). Culprit **stenoses** are usually identified by noninvasive means (**radionuclide perfusion** imaging, echocardiography with provocation of myocardial **ischemia**, or electrocardiography during pain) in combination with the angiographic characteristics of the **stenosis**.

...

...PTCA and medical therapy or bypass surgery for the treatment of stable angina. In the **Angioplasty Compared to Medicine (ACME)** trial, (Ref. 24) 212 patients with stable angina, provokable myocardial **ischemia**, and single-vessel **coronary artery** disease were randomly assigned to treatment with PTCA or medical therapy. Although the initial success...

...frequency of myocardial infarction (4 percent) and emergency bypass surgery (2 percent) associated with the **angioplasty**. Since PTCA occasionally results in an adverse outcome, its risk and potential benefit as compared...

...comparing PTCA with bypass surgery in patients with stable angina and single-vessel or multivessel **coronary artery** disease are in progress,

including the Emory **Angioplasty** vs. Surgery Trial, (Ref. 39) the **Coronary Artery Bypass** Revascularization Intervention, the Argentine Randomized Trial of **Coronary Angioplasty** versus Bypass Surgery in Multiple Vessel Disease (ERACI), (Ref. 40) the German **Angioplasty Bypass** Investigation, (Ref. 41) the Randomised Intervention Treatment of Angina (RITA), (Ref. 42) and the Bypass **Angioplasty** Revascularization Investigation (Ref. 41). In a trial that enrolled 1011 patients and followed them for...

...PTCA were more likely to have angina, to require antianginal medications, and to undergo additional **coronary** angiography and revascularization (Ref. 42). Similar results after one year of follow-up were reported...

...medical therapy (Ref. 43,46). Those with angina that persists despite medical therapy usually undergo **coronary** angiography and revascularization (Ref. 43,47). The initial success rate with PTCA is slightly lower...

...angina, (Ref. 3,48,49) and the incidence of abrupt closure (Ref. 48-51) and **restenosis** (Ref. 52,53) is somewhat higher. Some studies have suggested that the incidence of abrupt...

...preferably for 10 to 14 days after the resolution of symptoms), (Ref. 49,55) or **administering intravenous thrombolytic** therapy shortly before, during, and possibly after PTCA (Ref. 56). The usefulness of PTCA in patients with unstable angina is being assessed in the **Thrombolysis** in Myocardial Infarction (TIMI) study, phase IIIB, in which patients were assigned to treatment with **coronary** angiography and revascularization or to more conservative treatment, with invasive procedures performed only when clinically...year survival rate of 90 to 96 percent. In three randomized trials comparing PTCA with **intravenous thrombolytic** therapy in patients with evolving infarction, (Ref. 57-59) antegrade flow in the infarct-related **artery** was restored in about 95 percent of the patients undergoing PTCA -- a higher percentage than that in the group of patients who received **thrombolytic** therapy (Ref. 57-59). These trials are reviewed elsewhere (Ref. 60). The patients undergoing PTCA...

...events in the hospital (nonfatal reinfarction or death) and were less likely to have recurrent **ischemia** or to require **coronary** revascularization during follow-up. As compared with **thrombolytic** therapy, PTCA was particularly advantageous in patients considered to be at high risk (those over...

...with cardiogenic shock have a markedly improved outcome if the patency of the infarct-related **artery** is restored by means of emergency PTCA (Ref. 60). The benefit of this therapeutic strategy is being evaluated in a multicenter, prospective, randomized trial.

After **Thrombolytic** Therapy

Although **thrombolytic** therapy restores antegrade **perfusion** of the **artery** in 75 to 90 percent of patients, (Ref. 61-63) some have severe residual **stenosis**, which may lead to recurrent **thrombotic occlusion**. If performed soon after **thrombolysis**, PTCA can reduce the severity of the residual **stenosis** and the likelihood of recurrent **occlusion**, thereby improving morbidity and mortality. However, several trials have demonstrated that PTCA performed immediately after **intravenous thrombolytic** therapy is not beneficial and may be deleterious. In the first phase of the **Thrombolysis** and **Angioplasty** in Myocardial Infarction (TAMI) study (Ref. 62) and in phase IIA of the TIMI study...

...had a higher incidence of bleeding complications. In TIMI IIA, those undergoing PTCA immediately after **thrombolytic** therapy had an increased incidence of combined serious adverse events (death, recurrent infarction, bypass surgery...

...Cooperative Study Group trial, (Ref. 64) the performance of PTCA immediately after the administration of **intravenous** plasminogen activator did not influence the size of the infarct or the incidence of subsequent reinfarction but did result in an increased incidence of recurrent

ischemia , bleeding complications, and blood transfusions. In addition, mortality was higher at two weeks and at...

...noted increased morbidity and no advantage when PTCA was performed immediately after the administration of **intravenous streptokinase**. Thus, routine PTCA of the infarct-related **artery** within hours after **thrombolytic** therapy confers no benefit, and patients treated in this manner are at increased risk of...

...Two large studies have tested the hypothesis that delayed PTCA of the infarct-related **artery** after **intravenous thrombolytic** therapy reduces long-term morbidity and mortality. In both trials, patients receiving **intravenous thrombolytic** therapy were randomly assigned to undergo PTCA one to two days after infarction or to receive more conservative treatment, with PTCA performed only in the case of spontaneous or provokable **ischemia** . In the Should We Intervene Following **Thrombolysis** study, (Ref. 67) 800 patients received **intravenous** anisoylated plasminogen-streptokinase activator complex and were randomly assigned to treatment with PTCA or the ...

...similar in the two groups. In the TIMI IIB trial, (Ref. 68) 3262 patients received **intravenous** tissue plasminogen activator and were randomly assigned to undergo PTCA 18 to 48 hours later...

...in the two groups (Ref. 69). Thus, PTCA performed routinely 18 to 48 hours after **intravenous thrombolytic** therapy -- in the absence of spontaneous or provokable **ischemia** -- does not improve left ventricular function or survival. These studies indicate that among patients who receive **thrombolytic** therapy, PTCA should be reserved for those with symptomatic or objective evidence of **ischemia** .

...

...0 to 2 percent (Ref. 3,72,73). These events are usually caused by extensive **coronary arterial** dissection, intracoronary **thrombosis** , or both, with resultant vessel **occlusion** . **Coronary arterial** perforation, rupture, or embolization is rare (Ref. 70); the last is more likely in a saphenous- **vein** graft than in a native vessel...

...with abrupt closure, it occurs within minutes after PTCA, when they are still in the **catheterization** laboratory; in the other 25 percent, it usually occurs within 24 hours after the procedure...

...Three pathophysiologic processes may contribute to the occurrence of abrupt closure after PTCA: extensive dissection, **thrombosis** , and **coronary** vasospasm (Ref. 77,78). Some degree of intimal dissection -- characterized angiographically as a linear intraluminal...

...views. When it is extensive, however, the radiographic features are readily apparent, and the vessel **lumen** may be compromised. Extensive dissection is caused by injury of the deeper layers of the **arterial** wall, with subsequent intramural hemorrhage (Fig. 3). Ten percent of patients with **coronary arterial** dissection after PTCA require emergency bypass surgery, sustain a myocardial infarction, or die. In contrast...

...without extensive dissection have a serious complication (Ref. 79).
*Figure 3.-Cineangiograms of the Left **Coronary Artery** in the Right Anterior Oblique Projection before and Immediately after PTCA of the Circumflex **Artery** . The circular wires in the right portion of each panel are sternal sutures from previous **coronary - artery** bypass grafting. Before **angioplasty** , a severe **stenosis** was present in the left circumflex **artery** (Panel A, arrow). When the **balloon** was **inflated** , extensive dissection occurred and propagated distally, leading to abrupt closure (Panel B, arrow) *. **FIGURE OMITTED...

...Acute **thrombus** formation after PTCA is characterized angiographically as an intraluminal filling defect or an area stained with radiographic contrast material. **Thrombus** formation is most likely to occur in patients with extensive dissection, those with a severe residual **stenosis** after

PTCA, those with preexisting intracoronary **thrombus**, and those not receiving an antiplatelet agent. In one study, 22 percent of the patients undergoing PTCA without antiplatelet therapy had **thrombi** demonstrable by angiography after dilation; in half these patients, the **thrombi** caused **occlusion**, requiring repeated PTCA, bypass surgery, or **thrombolysis** (Ref. 13). Conversely, those who received aspirin before PTCA were much less likely to have demonstrable **thrombi** afterward...

...Since most patients receive nitrates, calcium-channel blockers, or both before, during, and after PTCA, **coronary** vasospasm is an uncommon cause of abrupt closure.

Risk Factors for Abrupt Closure

Several clinical...

...abrupt closure. *Table 1. Variables Associated with an Increased Risk of Abrupt Closure of the **Artery** in Patients Undergoing PTCA *. **TABLE OMITTED**

Consequences of Abrupt Closure

The consequences of abrupt closure vary widely. Patients with adequate collateral perfusion of the **occluded** vessel may have abrupt closure without chest pain, electrocardiographic abnormalities, or hemodynamic compromise (Ref. 76). More commonly, abrupt closure is accompanied by chest discomfort and electrocardiographic evidence of **ischemia** and requires immediate revascularization of the **occluded** vessel (by means of repeated PTCA or bypass surgery) to prevent or limit myocardial injury...

...effective treatment of abrupt closure is prevention, strategies aimed at precluding its possible causes (dissection, **thrombosis**, and vasospasm) are routinely instituted. Calcium-channel blockers, nitrates, or both are usually administered before...

...patients at high risk of abrupt closure (those with angiographically demonstrable extensive dissection or intracoronary **thrombus**) are given an infusion of heparin for 12 to 24 hours after PTCA, although the...

...When abrupt closure occurs, redilation with a standard **balloon catheter** is usually attempted, which is successful in about 50 percent of patients (Ref. 75,76,85). When this strategy fails, a special **balloon catheter** known as a perfusion **catheter** may be used, if the **coronary** anatomy is suitable. Holes in the **catheter** proximal and distal to the **balloon** allow blood to flow through the **catheter** during **inflation** of the **balloon**, thus maintaining perfusion of the distal **artery** during prolonged **inflation** (10 to 30 minutes). In the majority of patients in whom a standard **balloon catheter** fails to restore sustained anterograde perfusion, a perfusion **catheter** is effective (Ref. 85,86). If these strategies are unsuccessful in restoring and stabilizing anterograde flow, further management is dictated by the amount of myocardium perfused by the **occluded artery**, the severity of symptoms or hemodynamic compromise, and the risk associated with emergency bypass surgery...

...in the ensuing days to weeks in 10 to 15 percent (Ref. 87,88). Finally, **thrombolytic** therapy (Ref. 89) or directional atherectomy (Ref. 90) has been used on occasion in patients...

...If percutaneous methods fail to restore anterograde flow in the abruptly **occluded artery**, the patient is usually referred for emergency bypass grafting. Although the early mortality associated with...

...Peripheral **vascular** complications, such as femoral **arterial** pseudoaneurysm, laceration, **arteriovenous** fistula, embolism, **arterial occlusion**, and hematoma formation, occur in about 3 percent of patients undergoing PTCA. The use of large **arterial** sheaths, the concomitant use of anticoagulant or **thrombolytic** therapy, an advanced age, and the presence of peripheral **vascular** disease increase the risk of these **vascular** complications (Ref. 93,94). Other, less common acute complications of PTCA are similar to those of diagnostic **coronary** angiography, including atrial or ventricular arrhythmias, conduction abnormalities, **coronary arterial** embolization, cardiac tamponade, allergic reactions to contrast material or one of the medications given

during...

...successful PTCA, the chief limitation to long-term, event-free survival is recurrence of the **stenosis**, or **restenosis**. Although improved medical therapy and technical advances over the past decade have reduced the incidence of abrupt closure, the incidence of **restenosis** has not changed. Several definitions of **restenosis** have been suggested, but it is most commonly defined as more than a 50 percent narrowing of the diameter of the **lumen** at the site of previously successful PTCA (Fig. 4). **Restenosis** occurs in about one third of patients in whom a narrowed **artery** has been dilated (Ref. 22,53,97,98) and in about 60 percent of those in whom a chronically **occluded artery** has been dilated (Ref. 26,27). **Restenosis** typically occurs one to three months after PTCA, and in 95 percent of patients, it occurs within six months after the procedure. **Restenosis** is uncommon less than one month or more than six months after PTCA (Ref. 12). *Figure 4.-Cineangiograms of the Right **Coronary Artery** in the Left Anterior Oblique Projection before, during, Immediately after, and Four Months after PTCA. During the procedure, a temporary transvenous pacing **catheter** is positioned in the right ventricle (Panels A, B, and C; black arrows). The base-line angiogram shows a severe **stenosis** in the midportion of the right **coronary artery** (Panel A, white arrow). A **balloon** is positioned adjacent to the **stenosis** and is **inflated** at 8 atmospheres of pressure for 60 seconds; the extent of **inflation** is shown by the two white arrows (Panel B). The result is excellent, with no visible residual **stenosis** (Panel C, white arrow). Four months later, the patient was hospitalized with recurrent angina on exertion, and the angiogram showed evidence of **restenosis** (Panel D, arrow) *. **FIGURE OMITTED**

Mechanism of **Restenosis**

The process of **restenosis** is initiated by injury of the vessel, with the subsequent release of **thrombogenic**, vasoactive, and mitogenic factors (Ref. 99). Endothelial and deep-vessel injury leads to platelet aggregation, **thrombus** formation, inflammation, and activation of macrophages and smooth-muscle cells. These events induce the production...

...which results in the migration of smooth-muscle cells from their usual location in the **arterial** media to the intima, where they change to a synthetic phenotype, produce extracellular matrix, and proliferate, thereby resulting in a **stenosis** within the vessel **lumen**. In addition, scar contraction may occur, further reducing the size of the **lumen** (Ref. 101). These processes make up the wound-healing response that occurs in all patients...

...patients with the most pronounced reparative response to the intimal and medial damage induced by **balloon inflation**, luminal encroachment is particularly marked, and such patients are said to have **restenosis**. Contraction ...the dilated and stretched medial and adventitial layers -- so-called elastic recoil -- may contribute to **restenosis**, but such contraction is usually apparent within hours to days after PTCA (Ref. 102).

Risk Factors for **Restenosis**

Numerous clinical, anatomical, and procedural variables have been associated with an increased incidence of **restenosis** after successful PTCA (Table 2). Among the clinical variables, diabetes mellitus and unstable angina are...

...nature of these analyses, the clinical variables have limited value as a means of predicting **restenosis** in an individual patient (Ref. 106).

*Table 2. Variables Associated with an Increased Risk of **Restenosis** after PTCA *. **TABLE OMITTED**

Consequences of **Restenosis**

Most patients with **restenosis** after successful PTCA have recurrent angina, but some of those with angiographic evidence of **restenosis** are asymptomatic. Since such patients have a good prognosis, a second **angioplasty** should be reserved for those with recurrent symptoms (Ref. 118). Myocardial infarction is rarely the initial manifestation of **restenosis**. The severity of the narrowing at the site of **restenosis** is usually similar to that before PTCA (Ref. 119). However, when PTCA is performed in a minimally narrowed **coronary artery**, the **restenosis** may be more severe than the initial **stenosis**.

Management of **Restenosis**

Restenosis is often treated successfully with a second PTCA. The second procedure is more likely to...

...procedure is performed only in patients in whom the first was successful, and because the **restenosis** consists primarily of fibroproliferative tissue rather than atherosclerotic **plaque**. The incidence of **restenosis** after a second PTCA is thought to be similar to that after the initial dilation...

...Numerous pharmacologic approaches and devices have been evaluated in an attempt to prevent **restenosis** (Table 3). Fish oil, lovastatin, and triapiril (triazolopyrimidine) have shown promise in some trials, (Ref...

...pharmacologic agent may have had too few patients or used inadequate doses. The incidence of **restenosis** after elective placement of an intracoronary stent appears to be low, (Ref. 142,143) but...

...yet available. *Table 3. Pharmacologic Agents Evaluated in Randomized Trials to Reduce the Incidence of **Restenosis** after PTCA *. **TABLE OMITTED...

... **Coronary** Atherectomy

Apart from PTCA, directional **coronary** atherectomy is the only procedure approved by the Food and Drug Administration for percutaneous **coronary** revascularization that is in widespread use. With this procedure, a windowed cylindrical housing is compressed against the **stenosis** as the attached **balloon** is inflated against the opposite wall of the **artery**. Once the housing has been positioned, a rotating metal blade within it is advanced, which shaves **plaque** from the vessel wall and deposits the debris in the tip of the **catheter**. The luminal area is increased by the dilating effect of the device itself, **inflation** of the **balloon**, and removal of atherosclerotic material (Ref. 9,144). When atherectomy is used to treat noncalcified **stenoses**, the incidence of initial success, abrupt closure, and **restenosis** is similar to that for PTCA (Ref. 144-146...

...Two recent randomized trials compared atherectomy and PTCA. In the **Coronary Angioplasty** versus Excisional Atherectomy Trial (CAVEAT), the patients undergoing atherectomy had a higher incidence of angiographically documented successful revascularization but also had a higher incidence of acute complications. **Restenosis** occurred in 50 percent of the 512 patients treated with atherectomy and in 57 percent...

...likely to have a myocardial infarction within six months after the procedure. Among patients with **stenoses** of the proximal left anterior descending **artery**, atherectomy resulted in a lower incidence of **restenosis** than did PTCA (51 percent vs. 63 percent, $P = 0.04$), but there was no...

...The Canadian **Coronary** Atherectomy Trial compared atherectomy in 138 patients with PTCA in 136 patients, all with **stenoses** of the proximal left anterior descending **artery**. Although atherectomy resulted in a higher incidence of initially successful revascularization, the clinical outcome at...

...to the findings of CAVEAT, atherectomy and PTCA were associated with a similar incidence of **restenosis** ...and additional experience in performing it may lead to the identification of specific characteristics of **stenoses** that are more effectively approached with atherectomy...

...than bypass surgery, (Ref. 149) even though some patients who undergo PTCA require a second **angioplasty** because of **restenosis** (Ref. 150). Much of the difference in cost between PTCA and bypass surgery is attributable...

...and Quality of Life (Ref. 41) will address this question as part of the Bypass **Angioplasty** Revascularization Investigation, a randomized trial...

...more than 15 years ago, there have been notable advances in technique and equipment. Many **stenoses** -- regardless of their location, severity, or morphologic characteristics -- can now be dilated successfully. The

development...

...PTCA even further. Moreover, new antiplatelet and antithrombin agents may reduce the incidence of acute **thrombotic** complications. **Restenosis** remains a challenge; unfortunately, there has been little progress in reducing its incidence. The pathophysiology of **restenosis** is multifactorial and poorly understood. In all probability, a therapeutic approach that combines several pharmacologic and procedural innovations will be required to decrease the incidence of **restenosis**.

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Set	Items	Description
S1	175992	(VENOUS OR VEIN? OR ARTERY OR ARTERI? OR VASCULAR? OR INTR- ?VASC? OR INTR?VEN? OR BLOOD?())VESSEL? OR VENAL OR CORONAR?)
S2	78229	OCCLUD? OR OCCLUSI? OR OBSTRUCT? OR STENOS? OR STENOT? OR - RESTENOS? OR RESTENOT? OR PLAQUE?
S3	66259	SCLERO? OR THROMB? OR BLOODCLOT? OR BLOOD()CLOT? OR ISCHEM- I? OR ARTER?SCLER? OR PLAQUING
S4	367	CALCIUM()DEPOSIT?
S5	340080	BALLOON? OR PLASTY? OR PLASTIE? ? OR ANGIOPLAST? OR OCCLU?- ()DEVICE? OR INFLAT? OR CARDIOPLAST?
S6	1	ARTERIOPLAST?
S7	4824648	DELIVER? OR ADMINIST? OR INJECT? OR INFUS? OR PERFUS?
S8	43377	CATHETER? OR CANNULA? OR CANULA? OR TROCAR? OR LUMEN? OR H- OLLOW?(N)WIRE?
S9	1199591	DRUG? OR NARCOTIC? OR OCCLU?(N)TREAT? OR ANTICOAGUL? OR AN- TI()COAGUL? OR THROMBYT?
S10	8178	RADIONUCLID? OR RADIO()NUCLID? OR RADIOISOTOP? OR RADIO()I- SOTOP? OR RADIOACTIVE()ISOTOP?
S11	6	RADIO()ACTIVE()ISOTOP?
S12	95165	FLOWRATE? OR FLOW()RATE? OR "CC" OR "C.C." OR CUBIC()CENTI- L?
S13	238441	S7(10N) (S9 OR S10 OR S11)
S14	214	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6) AND S8 AND S12
S15	71	S13 AND S14
S16	75218	S3 OR ARTERI?SCLER? OR ARTER?()SCLER? OR ARTHER?SCLER? OR - ARTH?()SCLER? OR ATHER?SCLER? OR ATHER?()SCLER?
S17	340117	S5 OR (CARDIO? OR ANGIO?)()PLAST?
S18	1200917	S9 OR THROMBOL?
S19	95709	S12 OR (INFUS? OR PERFUS?)()RATE?
S20	238893	S7(10N) (S9 OR S10 OR S11 OR S18)
S21	242	S1 AND (S2 OR S3 OR S4) AND (S5 OR S6 OR S17) AND S8 AND (- S12 OR S19)
S22	99	S20 AND S21
S23	25838	S1(10N) (S2 OR S3 OR S4)
S24	340118	S5 OR S6 OR S17
S25	238893	S7(10N) (S9 OR S10 OR S11 OR S18)
S26	164	S8(10N) (S12 OR S19)
S27	4	S23 AND S24 AND S25 AND S26
S28	2	S27 AND PY<1999
S29	22480	1(S) (S2 OR S3 OR S4)
S30	22107	29 AND S25
S31	52617	7(S) (S9 OR S10 OR S11 OR S18)
S32	20121	30 AND S31
S33	965	S9(S) (S12 OR S19)
S34	2979	S29 AND S31
S35	235	S31 AND S33
S36	718134	35 AND PY<1999
S37	193	S35 AND PY<1999
S38	118	S37 AND S20

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File 16:Gale Group PROMT(R) 1990-2003/Sep 26

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File 444:New England Journal of Med. 1985-2003/Sep W4

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38/5,K/18 (Item 8 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
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09082591 SUPPLIER NUMBER: 18802892 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Pharmaceuticals in the new millennium. (Chemical Market Reporter: 125 Years)
Gerry, Roberta
Chemical Marketing Reporter, v250, n17, pS80(7)
Oct 21, 1996
ISSN: 0090-0907 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2234 LINE COUNT: 00182

ABSTRACT: The pharmaceutical industry is undergoing a period of deep-seated, revolutionary change as the new millenium approaches. The imperatives of competition and of developing new products to treat diseases which did not exist at the turn of the century is driving a wave of mega-acquisitions throughout the industry. The structure of the industry is also changing as pharmaceutical companies merge with chemical companies and assume an increasingly globalized and integrated character.

SPECIAL FEATURES: illustration; photograph
INDUSTRY CODES/NAMES: CHEM Chemicals, Plastics and Rubber; BUSN Any type of business
DESCRIPTORS: Pharmaceutical industry--Management
PRODUCT/INDUSTRY NAMES: 2834000 (Pharmaceutical Preparations)
SIC CODES: 2834 Pharmaceutical preparations
FILE SEGMENT: TI File 148

... interstate commerce and required "honest labeling."

In 1928, Congress authorized the organization of the Food, Drug & Insecticide **Administration** as a separate unit to engage in research and technical work associated with the execution...

...And, in 1938, the agency's jurisdiction was expanded with the passage of the Food, Drug & Cosmetic Act.

From the very onset, Food & Drug **Administration** has been agonizingly slow in approving new **drugs**. However, in the last four years, the pace has quickened noticeably. As recently as 1987...

...has been running a direct-to-consumers advertising campaign urging patients who take a rival **drug**, Pfizer's Procardia XL, to ask their doctors to switch them to Adalat **CC** for a 28 percent savings.

On the sensitive issue of drug prices, the public perception...of pharmaceutica)s and biotechnology, it is predicted, will produce a whole new generation of **drugs**. In 1993, SmithKline Beecham made a \$125 million deal for 7 percent of Human Genome Sciences of Rockville, MD, which gave SmithKline access to the largest...

19961021

38/5,K/50 (Item 40 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2003 The Gale Group. All rts. reserv.

06517844 SUPPLIER NUMBER: 13594395 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Dissolution and bioavailability of drug delivery systems. (parameters evaluated affecting performance of drug delivery systems with comparison of in vitro and in vivo measurements)
Banakar, Umesh V.
Manufacturing Chemist, v64, n1, p18(5)
Jan, 1993
ISSN: 0262-4230 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 3526 LINE COUNT: 00297

SPECIAL FEATURES: illustration; table; graph
INDUSTRY CODES/NAMES: CHEM Chemicals, Plastics and Rubber; ENG Engineering and Manufacturing; INTL Business, International

DESCRIPTORS: Drug delivery systems--Evaluation; Bioavailability--
Measurement; Solution (Chemistry)--Analysis
FILE SEGMENT: TI File 148

Dissolution and bioavailability of drug delivery systems. (parameters evaluated affecting performance of drug delivery systems with comparison of in vitro and in vivo measurements)

... activity of the intestinal microflora, and dissolution rate.

The slowest of rate-limiting steps in **drug** absorption are blood flow (**perfusion rate** -limited), or **drug** penetration through the membrane diffusion rate-limited). With highly lipid-soluble **drugs** or those that are able to pass freely through aqueous filled pores, penetration through a membrane may be so rapid that equilibrium is promptly established between the **drug** concentration at the absorption site and that of **drug** in blood. Under these conditions the rate-limiting step controlling **drug** absorption is blood flow.

Figure 2 exemplifies this phenomenon. Tritiated water moves freely through aqueous...

...and then its absorption is insensitive to changes in blood flow.

In general, absorption of **drugs** in solution from muscle and subcutaneous tissue is **perfusion rate** -limited. Increased blood flow increases absorption. The main barrier to **drug** absorption here is the capillary wall, which at these sites is much more loosely knit...

...prolonged gastrointestinal residence time (Fig. 4). The presence of larger fluid volume coupled with rapid **drug delivery** to an environment that is more suitable for absorption will provide better and more reproducible...

...the gut wall may be inhibited or induced by dietary, or environmental xenobiotics, and co-**administered drugs**. Phase 1 and Phase 2 metabolic reactions occurring in the gut wall of humans is...

...by organisms residing in the lower gut and hence has minimal effect on most orally **administered drugs** and However, slowly absorbed orally **administered drugs** and rectally **administered drugs** may be subjected to substantial bacterial metabolism.

Habitat and diet play major roles in determining...347-390. J.P. Skelly, G.L. Amidon, W.H. Barr et al., Pharm. Res. 7, 975 (1990) P.G. Welling. Dosage Routes; Bioavailability and Clinical Efficacy. In Pharmacokinetics: Regulatory, Industrial...

...Kotzan, J.T. Stewart, W.J. Brown, V.P. Shah, and F.R. Pelsor, Biopharm, **Drug Disp.**, 7, 281-291 (1986). F. Lagenbucher and J. Myscika, Br. J. Clin. Pharmac., 19, 151S-162S...M.A. Walker, V.K. Prasad, J. Lin, G. Knapp and B.E. Cabana, Biopharm. **Drug Disp.** 5, 11-19 (1984). H. Ogata, N. Aoyagi. K. Kaniwa, T. Shibazaki, A. Ejima...

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...Pharm. Pharmac., 25, 968-973, (1973). G.L. Mattok et al. Can. J. Pharm. Sci., 7, 84-87 (1972). G. Levy. Indus. Pharmacy Section Sym., APhA, Ann. Mtg. Dallas, TX (1966...

DESCRIPTORS: Drug delivery systems...
19930100

04165913 SUPPLIER NUMBER: 08119625 (USE FORMAT 7 OR 9 FOR FULL TEXT)
**Pulmonary thromboembolism: guidelines for use of thrombolytic and
anticoagulant therapy.**

Wood, Richard G.; Kinasewitz, Gary T.
Consultant, v29, n10, p38(8)
Oct, 1989

ISSN: 0010-7069 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 3814 LINE COUNT: 00336

CAPTIONS: Anticoagulant activity of heparin. (chart); Decisions in
treatment of patients with pulmonary embolism. (chart); Contraindications
to medical treatment of pulmonary embolism. (table); Characteristics of
thrombolytic agents. (table); Rate of recurrent thromboembolic events
following discharge. (graph)

SPECIAL FEATURES: illustration; chart; table; graph
INDUSTRY CODES/NAMES: HLTH Healthcare
DESCRIPTORS: Anticoagulants (Medicine)--Physiological aspects; Pulmonary
embolism--Drug therapy; Thrombolytic drugs--Physiological aspects;
Thromboembolism--Drug therapy
SIC CODES: 8011 Offices & clinics of medical doctors
FILE SEGMENT: TI File 148

... patients with acute pulmonary thromboembolism. The vast majority of
these patients can be treated for 7 to 10 days with intravenous heparin,
followed by 3 months of out-patient oral **anticoagulation** therapy with
warfarin. Those with massive embolism should receive **thrombolytic** therapy
followed by conventional heparin treatment and subsequent outpatient
anticoagulation. The complications of **anticoagulation** are recurrent
thromboembolism and bleeding. Surgical intervention may be indicated if
there is a contraindication to **anticoagulation** or when complications
occur during **anticoagulant** therapy.

Acute pulmonary embolism is a common clinical entity that is directly
responsible for the...

...dosage. Heparin can be administered subcutaneously, by intermittent IV
bolus, or as a continuous IV **infusion**. After an initial loading bolus,
continuous **infusion** provides reliable **anticoagulation** and has a low
incidence of bleeding complications. The incidence of major bleeding
associated with...

...probably related to the increased total daily dose of heparin required
when using intermittent bolus **administration** to maintain an
anticoagulated state.

Adequate **anticoagulation** is achieved when sufficient heparin is
administered to prolong the activated partial thromboplastin time (aPTT)
to 1.5 to 2.0 times the **infusion** to ensure that adequate, but not
excessive, **anticoagulation** has been achieved. Once the heparin **infusion**
rate has been stabilized, monitor the aPTT daily.

Complications. Serious bleeding is the major complication of...

...reserve in case of recurrent embolism.

Despite the fact that virtually complete resolution of the **perfusion**
defects was observed in both the heparin and the **thrombolytic** groups of
the UPET study, thrombolytic therapy may also have additional benefits.
Compared with the...

...repeated use. Urokinase is, however, much more expensive than
streptokinase (Table 2). Dosage of this **thrombolytic** agent is calculated
according to body weight. It is **administered** as a continuous IV infusion
for 12 hours, followed by conventional heparin **infusion**.

Table : Table 2 - Characteristics of thrombolytic agents			
Features	Streptokinase	Urokinase	TPA
Half-life (min)	23	16	8
Dose	100,000 IU...incidence of recurrent		

thromboembolism is highest during the first 12 weeks after the acute episode.[7] This rate can be reduced by maintaining patients on oral **anticoagulant** therapy for at least 3 months after they have completed 7 to 10 days of in-hospital treatment for pulmonary embolism (Figure 2). After the first 12 weeks, you must weigh the risk of bleeding complications against the benefits of **anticoagulation** .

Warfarin, a member of the coumarin group, is an oral anticoagulant that acts by interfering...effect may be caused in part by the complex pathway of warfarin absorption and by **drug** interactions.

Subcutaneously **administered** heparin has been used in several studies as an alternative to warfarin after patients are...

...demonstrated significant reduction in the bleeding complication when compared with conventional warfarin therapy.[8]

Subcutaneously **administered** heparin provides an acceptable option for long-term **anticoagulation** in the pregnant patient (for whom warfarin is contraindicated), in the patient who is at...

...pulmonary embolism. N Engl J Med. 1973;289:55-58. [4.] Barritt DW, Jordan SC. **Anticoagulant drugs** in the treatment of pulmonary embolism: a controlled trial. Lancet. 1960;1:1309-1312. [5...
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Intermittent Coronary Occlusion in Acute Myocardial Infarction: Value of Combined Thrombolytic and Vasodilator Therapy (Original Article)

Hackett, David, M.B.; M.R.C.P.I.; Davies, Graham, M.R.C.P.; Chierchia, Sergio; Maseri, Attilio, F.A.C.C.
The New England Journal of Medicine
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Abstract

We performed continuous electrocardiographic ST-segment monitoring and serial coronary arteriography in 45 consecutive patients presenting in the early stages of acute myocardial infarction. During cardiac catheterization, 28 episodes of arteriographically confirmed coronary reopening and subsequent reocclusion were observed in 16 patients before (3 episodes) and during (25 episodes) continuous intracoronary infusion of streptokinase. In addition, ST-segment monitoring demonstrated 12 episodes of spontaneous transient return of the ST segment to the base line in eight patients between the time of admission and the performance of coronary arteriography. During arteriographically documented reocclusion, intracoronary isosorbide dinitrate (2 mg) reestablished the patency of the coronary artery within one to two minutes in 14 of 28 episodes that occurred in 11 of 16 patients. After streptokinase infusion, intracoronary administration of isosorbide dinitrate was followed by dilatation of the infarct-related stenosis from a mean value (+/- SD) of 1.12 +/- 0.3 mm (58.1 +/- 12.1 percent) to 1.33 +/- 0.4 mm (51.6 +/- 12.9 percent; P = 0.004).

Spontaneous intermittent coronary recanalization and reocclusion resulting from a variable combination of thrombosis and vasoconstriction are frequent during the early phase of acute myocardial infarction. We propose that the combination of intracoronary streptokinase and isosorbide dinitrate may increase the rate of stable coronary recanalization. (N Engl

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* * USE FORMAT 9 FOR FULL TEXT OF ARTICLE * *

1987 ;

TEXT

...was graded from 0 (complete occlusion) to 3 (patency), according to the criteria of the **Thrombolysis** in Myocardial Infarction (TIMI) Study Group,

(Ref. 7) by two blinded observers; in the four cases in which disagreement occurred, it was resolved...2388 +/- 1508 IU per liter, P = 0.8), in Wagner QRS score (Ref. 4) before **thrombolysis** (2.43 +/- 2.1 vs. 2.38 +/- 2.1, P = 0.9) or after **thrombolysis** (5.95 +/- 4.7 vs. 4.57 +/- 4.0, P = 0.3), or in the incidence of angiographically detected...in the size of the minimal residual diameter of the infarct-related coronary stenoses after **thrombolysis** between patients with intermittent occlusion (1.07 +/- 0.3 mm 61.3 +/- 11.0 percent...

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...laboratory animals (Ref. 16,17). At a later stage, when initial recanalization is achieved by **thrombolysis**, nitrates may become effective in relieving vasoconstriction because of their **delivery** in adequate concentrations to the relevant coronary segment. After **thrombolysis**, the increase in the caliber of the residual stenosis that follows another intracoronary dose of...infarction suggests that thrombolytic therapy may be complemented by high doses of selective intracoronary vasodilator **drugs**, which can increase the **flow rate** in subtotally occluded vessels and reopen vessels that become reoccluded during infusion of streptokinase. In turn, this increase in flow would be expected to result in better **delivery** of the **thrombolytic** agent along the thrombotic coronary segment.

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Intermittent Coronary Occlusion in Acute Myocardial Infarction: Value of Combined Thrombolytic and Vasodilator Therapy (Original Article)

Hackett, David, M.B., M.R.C.P.I.; Davies, Graham, M.R.C.P.; Chierchia, Sergio; Maseri, Attilio, F.A.C.C.
The New England Journal of Medicine
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Abstract

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- * * USE FORMAT 9 FOR FULL TEXT OF ARTICLE * *

1987 ;

TEXT

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Continuous Intravenous Heparin Compared with Intermittent Subcutaneous Heparin in the Initial Treatment of Proximal-Vein Thrombosis (Original Article)

Hull, Russell D., M.B.B.S., M.Sc.; Raskob, Gary E., M.Sc.; Hirsh, Jack;
Jay, Richard M.; Leclerc, Jacques R.; Geerts, William H.; Rosenbloom,
David, Pharm.D.; Sackett, David L.; Anderson, Christine, R.N.;
Harrison, Linda, R.N.; Gent, Michael, M.Sc.
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Abstract

We performed a randomized double-blind trial comparing continuous intravenous heparin with intermittent subcutaneous heparin in the initial treatment of 115 patients with acute proximal deep-vein thrombosis. Intermittent subcutaneous heparin as administered in this trial was inferior to continuous intravenous heparin in preventing recurrent venous thromboembolism. The subcutaneous heparin regimen induced an initial anticoagulant response below the target therapeutic range in the majority of patients and resulted in a high frequency of recurrent venous thromboembolism (11 of 57 patients, 19.3 percent), which was virtually confined to patients with a subtherapeutic anticoagulant response. In contrast, continuous intravenous heparin induced a therapeutic anticoagulant response in the majority of patients and a low frequency of recurrent events (3 of 58 patients, 5.2 percent; $P = 0.024$); the recurrences were limited to patients with an initial subtherapeutic anticoagulant response.

The results of this trial establish the efficacy of intravenous heparin in the treatment of proximal venous thrombosis and suggest a relation between the effectiveness of heparin and the levels of anticoagulation achieved; such a relation could explain the observed failure of the subcutaneous regimen. (N Engl J Med 1986; 315:1109-14).

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* * USE FORMAT 9 FOR FULL TEXT OF ARTICLE * *

1986 ;

TEXT

...trials have recently demonstrated that it is necessary to follow heparin treatment with long-term **anticoagulant** therapy in patients with proximal-vein thrombosis, to protect against recurrent venous thromboembolism (Ref. 11...

...1) and an interpretation awaits further clinical trials, as do conclusions about the intensity (Ref. 7) of heparinization required to prevent recurrent venous thromboembolism...to avoid unblinding on the basis of knowledge of heparin clearance, all dose adjustments and **anticoagulant** monitoring in both groups were based on this daily mid-interval measurement. The mid-interval...

...range is achieved, the mid-interval activated partial thromboplastin time predicts a sustained and therapeutic **anticoagulant** response throughout the 12-hour period between **injections** (Ref. 12,22). Both heparin regimens were adjusted daily to maintain the activated partial thromboplastin...

...a dosage schedule established before the trial. Changes were implemented simultaneously in both the intravenous **infusion rate** and the subcutaneous injection volume in every patient, keeping changes in total 24-hour heparin...0.001). All but one of the recurrences were in patients with an inadequate initial **anticoagulant** response. Thus, the episodes of

recurrent venous thromboembolism observed in this trial were associated with, and probably the result of, an inadequate **anticoagulant** response (Fig. 1 and Table 4). This conclusion is supported by the additional observation that the relative risk of recurrent venous thromboembolism was 15 times higher in patients with inadequate **anticoagulation** during the first 24 hours or more (13 of 53 patients, 24.5 percent) than in patients with an **anticoagulant** response in the prescribed therapeutic range (1 of 62 patients, 1.6 percent; $P < 0.001$).

...On day 1 the mean values in the subcutaneously and intravenously treated groups were 57.7 and 73.4 seconds, respectively, in patients without recurrent venous thromboembolism ($P = 0.002$) and...

...and the optimal therapeutic range have been subjects of debate for many years (Ref. 1-7). An uncontrolled prospective study (Ref. 30) has suggested that recurrent venous thromboembolism is infrequent if...

...Our findings, based on a controlled trial of two heparin regimens that produced significantly different **anticoagulant** responses early in the course of therapy, provide evidence of the need for an adequately intense heparin effect and support this clinical practice. Inadequate **anticoagulant** therapy clearly places patients with proximal-vein thrombosis at considerable risk of serious morbidity and...

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